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OCTOBER 30, 1941

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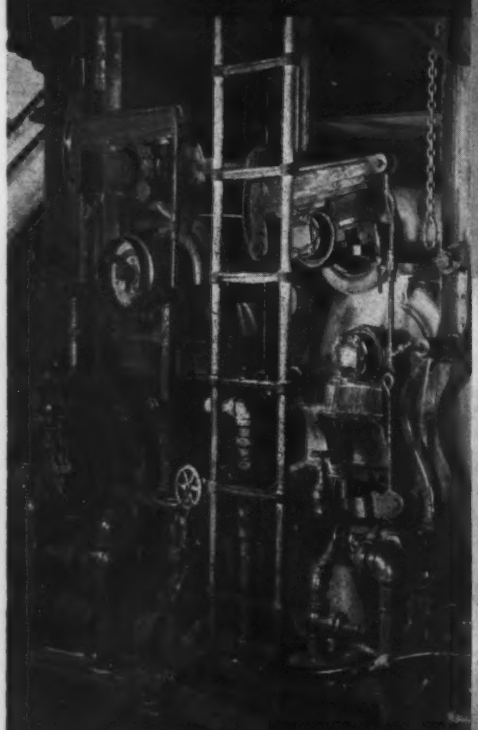

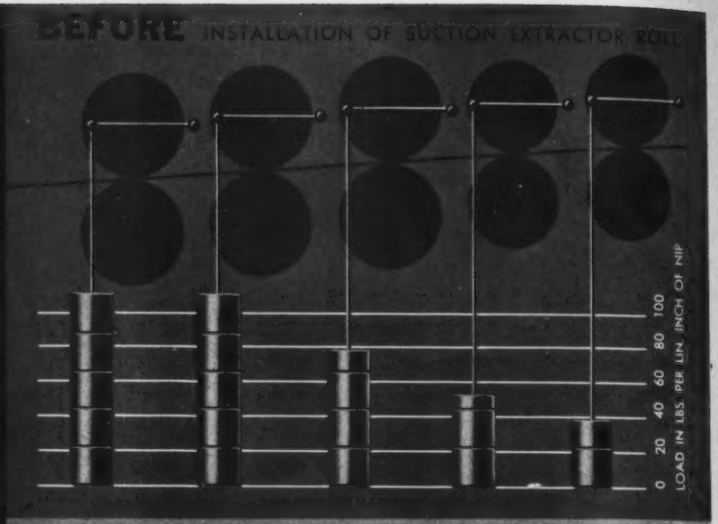

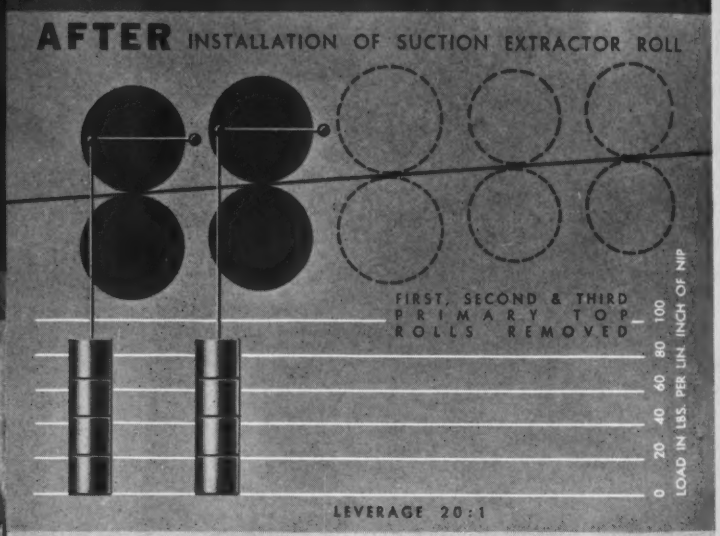
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PAPER TRADE JOURNAL

Established 1872
Title Reg. U. S. Pat. Off.

Volume 113 Number 18

Published every Thursday by Lockwood Trade Journal Co., Inc.

Executive and Editorial Offices:
15 W. 47th St., New York,
New York, United States of America
BRyant 9-0860

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Subscriptions
(Payable in advance)

By the year $4.00
Single Copy 10c
Postage Extra:
To Canada $2.00
To Other Foreign Countries $3.50

Member Audit Bureau of Circulations.

PAPER *established Feb. 17, 1899, combined with* PAPER TRADE JOURNAL *Nov. 16, 1899.* PAPER *established Sept. 21, 1910, combined with* PAPER TRADE JOURNAL *Feb. 19, 1925.*

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PAPER TRADE JOURNAL *is entered as Second Class matter at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office of Lockwood Trade Journal Co., Inc., 34 N. Crystal St., East Stroudsburg, Pa. Printed in U. S. A.*

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OPM Directs Mills to Cut Waste Paper Use

New Limitation Order Restricts Eastern Mill Consumption 10 Per Cent — In Effect From October 25 to November 22, 1941 — Full Text of Order Explains Details and How Mills Should Report.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 29, 1941—Because the current supply of waste paper is inadequate to meet the needs of eastern producers of paperboard and roofing materials, a limitation order restricting by 10% the consumption of waste paper by eastern mill plants from October 25 to November 22, 1941, was issued today by Donald M. Nelson, Director of Priorities.

The order affects paperboard and roofing mill plants in the area east of a line running from the Canadian border through and including Buffalo, N. Y., Pittsburgh, Pa., Tallahassee, Fla., to the Gulf of Mexico.

The order becomes effective at 7 A.M. EST, October 25, and ends at 7 A.M., EST, November 22, 1941.

Consumers, defined as any mill or plant using waste paper in the production of paperboard or roofing mill products in the East, are required to cut consumption 10% weekly below a weekly average determined on the basis of a previous consumption period.

The order was recommended by the Pulp and Paper Branch of the Division of Civilian Supply because the current supply of waste paper is inadequate to meet the needs of Eastern producers of paperboard and roofing materials essential for national defense, private account and export.

Pending formulation of a more direct method of allocation to individual paperboard and roofing mill plants, it is necessary to effect immediately an equitable distribution of available waste paper supplies. The limitation order is intended as a temporary measure pending further study of the problem.

Producers of paperboard and roofing materials consume practically all the waste paper supply, but the inadequacy of present supplies has been felt only in eastern states. Peak consumption by these producers in recent years has been about 25,000 tons a week. Now it has reached a rate of about 39,000 tons.

How Base Period is Computed

Three alternative methods of computing the base period on which the 10% curtailment is applied are set forth:

(1.) Each consumer who has produced paperboard or roofing materials from waste paper for five weeks or more during the 10-week period ended at 7 a.m. EST on October 4, 1941, shall total the consumption for the five peak weeks in that period, and determine from that figure the weekly average of consumption.

(2.) Each consumer who has been engaged in production for less than five weeks of the 10-week period shall total the consumption during the weeks of production and determine from that figure the weekly average.

(3.) Each consumer who has not produced paperboard or roofing materials during the 10-week period shall compute its "base" by estimating its weekly consumption when producing at peak capacity.

The order also states that consumers having inventories equal to or in excess of their weekly average consumption may buy waste paper during the next four weeks to only two-thirds of their past purchases. Those having inventories less than the base may buy up to 90% of past purchases.

Consumers are required to make weekly reports until November 24 to the Pulp and Paper Branch covering inventories, receipts and consumption. A report also must be made on consumption during the 10-week period on which the base is computed.

Consumers must classify consumption in the following grades: mixed, news, container (old corrugated and solid fiber boxes), all other.

General Limitations Order L-15

The order restricting the consumption of waste paper by paper board and roofing mill plants in the East follows:

Whereas, the current supply of waste paper is inadequate to meet the needs of Eastern Consumers thereof for the production of paperboard and roofing materials which are essential for national defense, private account and export; and it is necessary, pending the formulation of a more direct

(Continued on page 15)

New Price Policy May Aid Paper Industry

Canadian Anti-Inflation Measure Announced By Prime Minister Pegs All Prices and Freezes Wages — Paper and Pulp Industry May Benefit By What Is Called A Most Drastic Experiment.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 27, 1941—The latest Canadian war-time government regulations may stop us wearing zippers and curtail kid gloves, but from what your correspondent can learn to date, the latest priorities rulings and the new price ceiling system may prove of considerable benefit to the pulp and paper trades.

Following a great many conferences among political leaders, culminating in a governmental huddle last week-end ,Prime Minister Mackenzie King made one of the most mementous announcements in the country's history when he proclaimed an anti-inflation measure that strikes hard at the rising cost of living by "pegging" prices for all classes of goods and extending its wartime wage policy to every industry in the country by "freezing" wages.

Effective November 17, no goods, except sales for export, may be sold in Canada, or services supplied, at a price higher than was charged by the individual during the four weeks preceding October 11.

To Fix Prices of Rents and Utilities

The price limitation will cover all rentals, rates charged for electricity, gas, steam heat and water; telegraph, wireless and telephone services; transportation of goods and persons and the provision of dock, harbor and pier facilities; warehousing and storage, and all such like services; repairing of all kinds; the supplying of meals, refreshments and beverages. No employer in Canadian industry or commerce may henceforth increase his present wage rates without permission, but, after Nov. 15, every employer must pay a cost of living bonus in accordance with the terms specified by government order. A definite formulae will provide for adjustment of the bonus every three months.

Paper Industry Benefits by Policy

As far as the pulp and paper industry is concerned, all this adds up to the possibility of slightly better conditions.

With something less than 15% of their total production taken by the domestic market, pulp and paper companies find the price ceiling covers only a fraction of their sales, while the labor and materials ceilings will presumably cover a majority of their costs. From the information available on the workings of the plan, the industry appears to be assured of the ability to maintain the present export price, or to take advantage of any increase in the export markets.

Action Declared Necessary

In making the announcement Prime Minister King said the action was necessary and "represents an experiment hitherto untried on this continent, and perhaps, having regard to its breadth and variety, hitherto untried by the will and consent of any free people."

The war-time prices and trade board is authorized to increase the list of goods and services to which the measure applies. Ceiling prices in the case of agricultural products and fish, will be based upon market prices during the four weeks prior to October 11.

This drastic departure on the part of the government from its usual policy of leaving business alone as much as possible, is necessary because of the diversion of both labor and materials from regular peace-time channels to war work, with the natural result of spiraling costs and prices. By putting a ceiling to both wages and commodity prices the government hopes to maintain something like status quo. Whether or not it will all work out as expected is problematical, but for the present at least, the pulp and paper industry is not unduly perturbed.

OPM Announces Additions

Douglas C. MacKeachie, Director of Purchases, Office of Production Management, has announced additions to the Division of Purchases, including the following:

Albert W. Luhrs, consultant on paper and fibre containers in the Containers Branch under Walter Shorter. Mr. Luhrs was president of Containers Testing Laboratories at South Orange, N. J. Prior to that he acted as consultant in this country and Europe, and established testing laboratories in England, France, Germany, Italy and other European countries.

James Knox, New York, executive assistant to James MacPherson, head of the Equipment and Supplies Procurement Advisory Branch. Mr. Knox was credit manager of H. W. Baker Linen Company, wholesale textile firm in New York, and prior to that with the Chase National Bank in New York as credit account man and railroad specialist. He is a graduate of the Harvard Business School.

Paper Directory of All Nations

The 50th edition of The Paper Makers' Directory of All Nations for 1941, has just been published by Dean & Son, 41-43 Ludgate Hill, London, E.C.4, England, at 25 shillings per copy.

This standard publication is arranged alphabetically for convenient reference. It contains a complete list of mill products, listed by products, country of origin, and name of the concern.

The publishers state that several additional countries have been brought into the war zone since last year, and that the international character of the directory has been unchanged by including all enemy countries for the purpose of reference only.

Although the 1941 edition of this useful reference book has been issued later than usual this year, it contains because of this fact, more new addresses and emergency locations, which would normally be held over for another edition.

Chicago Reports No Let Up in Paper Demand

Practice of Allocating Orders and Self Regulation Working Out Well To Create Stabile Market Conditions—Waste Paper Dealers Hold Conference With OPM — Carton Supply Reported Tight.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 27, 1941—There seems to be no let up in demand for paper and paper products according to information given by local paper trade executives. There is some slackening in the retail field following the big buying push just preceding the October 1 tax dates but that is expected to have no appreciable effect on the overall situation. Meanwhile, local jobbers and sales representatives are fairly generally following the procedure of allocating orders to customers with the rationing accompanied by a new service designed to get the most out of the orders. The general paper industry indicates a belief that "ceilings" of any drastic nature have been postponed or eliminated because of some very fine self-regulatory efforts on the part of the industry itself and the "ceilings" thus far reported have been of a reportedly fair nature.

Chicago Concern Submits Price Data

Container Corporation of America is one of the three leading pulp producers which, after having announced higher prices, has agreed to submit detailed data to justify their action at a series of individual conferences. Upon completion of these conferences and study of the data thus acquired, the Office of Price Administration is expected to arrive at a decision as to whether a formal schedule of ceiling prices is necessary. It has been announced locally that unless it becomes necessary to issue a formal schedule of maximum prices beforehand, OPA plans to call a meeting of pulp producers in December to discuss the price situation.

To Add Import Duty on Paper Board

Chicago offices report information that import duty on paper board brought in from Canada may be added to the delivered price by buyers in the United States even though this results in a total cost which exceeds the maximums established in the paper board price schedule. The OPA ruling says that in no event shall the delivered price exceed the ceiling prices set in the schedule, plus the actual amount of the import duty. Importers of Canadian paper board are required to show the import duty as a separate charge in their invoice records.

Local Man on Newsprint Committee

The Chicago Times, Chicago daily newspaper, is represented on the newspaper industry advisory committee which may soon be asked to recommend the establishment of certain production practices and standards which shall produce the most reams from tonnages the volume of which have been diminished by labor and transportation shortages. S. E. Thomason of the Times is one of the members of the four man committee which is expected to advise the OPM as to the possibilities of trimming margins, reduction in number of pages, elimination of overdeliveries and elimination of nonessential uses of newspapers. The work of the advisory committee was fairly well outlined in an address given before the Inland Daily Press Association on October 14 by Norbert A. McKenna who said that "orders will fill defense needs first and at the same time so equitably distribute paper as to maintain the continuity of your businesses and your jobs."

Waste Dealers Meet with OPM

Representatives of the Office of Price Administration and Chicago waste material dealers met at the Blackstone Hotel on October 21 to discuss the rag price situation. This represents one of the preliminary steps by the government agency prior to the establishment of ceiling prices on this commodity. A major topic of discussion at the meeting covered price differentials and what levels should prevail between the various grades of old rags when maximum prices are set up. Other problems of the industry were also carefully analyzed. Dealers in old rags have been requested to submit records showing the prices at which they have sold leading grades of old rags since September 1. This data, along with the information collected at meetings here and in other cities as expected to be used in working out a price schedule. Meetings will be held in St. Louis, New Orleans and Atlanta. New price ceilings on old rags will be below the prevaiing price levels, according to the Office of Price Administration, as prices have advanced about $15 a ton since July 1 and currently are reported as ranging from $36 to $40 a ton or double for the last ten years.

Talk of Cardboard Scarcity

Retail merchants in Illinois are complaining of a scarcity of cardboard cartons and of high prices. The price of the board used by the manufacturers of cardboard boxes has been fixed by OPA. Retail groups are now attempting to obtain information about the price of supplies over a period of a year so that organized groups may ascertain whether or not the prices being charged are in line with the price of the raw materials. The Retailers Advisory Committee reports it has been assured that if merchants will buy temperately and on a basis of their immediate needs there is no reason either for a shortage or excessive price. Action will be taken, it is reported, as soon as the information desired is received.

Leads in Defense Clinic

Corwine E. Roach, president of the Capital City Paper Company of Springfield, Illinois, took an active part in a Defense Production Clinic held in Chicago this week. As chairman of the priorities committee of the Illinois Chamber of Commerce Mr. Roach had much to do with the success of this clinic for prime defense contractors, sub and potential subcontractors. The clinic proved a big aid in speeding up defense production in this area through sub-contracting and the huge exhibit hall at the Stevens helped materially to provide a pictorial picture of the possibilities open to the field of private industry.

U. S. Price Control Policies*

By Herbert F. Taggart[1]

Prices in a War Economy

The title of this talk could well have been "The Lesser of Two Evils". When the emergency price control bill was introduced into Congress a few weeks ago the *New York Times* made the following comment: "President Roosevelt's proposal for virtually over-all control of commodity prices was received with reluctant approval by many businessmen yesterday, even though they are traditionally opposed to any extensions of government controls over business . . . the general view was that price control is the lesser of the two potential evils . . . the other being dangerous inflation". Having been brought up in a very old-fashioned school of economic thought myself, I can't help having sympathy with the businessmen. I was taught that the price mechanism is the great regulator of our system of free enterprise and that it works best when left alone. "Don't monkey with the thermostat", was a favorite saying of "Old Freddie", as we used to call our professor of economics.

In common with the businessmen I am a thorough believer in the desirability of letting price perform its normal function—to equate demand and supply. In the long run, administered prices, whether administered by the combined action of businessmen or by a department of the government, are certain to be less satisfactory from a social point of view than free prices. They will result in lower production, less satisfactory distribution and a lower standard of living than will prices freely determined in the market place.

"Old Freddie", however, would not have been guilty of taking the attitude that the price mechanism should be left to itself when the country is at war or in a state bordering on war—when the economic forces which normally govern demand and supply and price are all topsy-turvy and can no longer be depended on to produce the greatest good for the greatest number. What many opponents of price regulation forget is that we are essentially in a war economy and that the very existence of the national institutions which we prize so highly depends on all-out effort to furnish first the goods and services required for defense and secondly to maintain as far as possible those goods and services and conditions which are necessary for civilian comfort, health and morale. To this end all ordinary considerations must be subordinated.

Citronella Oil in Medicine and Perfume

Just let me give one simple example of what I mean by the undesirability of letting the price mechanism serve its time-honored function. I discovered to my surprise the other day that citronella oil is good for something besides discouraging mosquitoes and black flies. It is used for the manufacture of menthol, a necessary medical item, and it also is used in the manufacture of perfumes. Now it happens that citronella comes from Java, and has to be transported to this country in ships. You may know that ships are at a premium and that cargo space must be used only for the most acutely needed supplies. From the vicinity of Java come rubber, tin, and many other items required for defense production. The amount of cargo space left for citronella oil is, therefore, very small.

It happens that the perfume industry could easily afford to monopolize all the citronella which we can import under these conditions. The oil is a small item of cost to the perfumers and they would be quite willing to pay present prices or even substantially increased prices for it. The result would be a relatively small increase in the price of perfumes, and the consumers with their present ample supplies of purchasing power would hardly know the difference. To the menthol industry, however, citronella oil is a basic raw material of major importance. A supply must be had if any menthol is to be produced at all—quite unlike the situation of the perfumers. If price were left free and the movement of the supply unregulated, either we should have none of an important medical supply or the menthol manufacturers would have to go into the market and bid against the perfumers. The result would be a thoroughly unjustified increase in the cost and price of a necessity in order to overcome the competition of an item of luxury. The higher price could not increase the total supply; it would only determine who gets the existing supply.

No such misfortune is going to happen, of course, because the price of such quantities of citronella oil as can be imported is going to be controlled and the supply is going to be allocated primarily to the manufacture of menthol.

Such examples could be repeated a thousand-fold and most of them would deal with commodities much more vital to our needs than either menthol or perfume. The results of reliance on the uncontrolled law of supply and demand in times like these would be the most grotesque miscarriages of economic justice, to say nothing of an almost certain failure of the defense program. The time is long since past for complaining, as is still being done, that these necessary measures are not in the American tradition.

U. S. Office of Price Administration

The writing of this speech was started when OPACS (Office of Price Administration and Civilian Supply) was still OPACS. Now that our civilian supply activities have been reorganized and we have lost the last two letters of our alphabetical designation, it might be thought out of order for a representative of the Office of Price Administration to talk about the supply end of the job. Effective price control is unthinkable, however, in the absence of measures of control of demand and supply. While the citronella example is one in which the primary problem is one of civilian supply, the price angle is an inevitable accompaniment.

I cannot leave the subject without going into one more case of special interest to one branch of the paper industry. Bones are useful for making glue. They are also much in demand for buttons. Another important use is in the manufacture of edible gelatin. Glue is a necessity for putting the gum on gummed tape which is used to seal the corrugated boxes in which both defense and civilian commodities are

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Ann Arbor, Mich., Sept. 16-19, 1941.

[1] Assistant Administrator, Office of Price Administration, Building D, Sixth and Independence Ave., S.W., Washington, D. C.

shipped. A short time ago gummed tape manufacturers were threatening to shut down because they had no glue. Bone buttons are more necessary than usual because (1) more clothing is being made, (2) supplies of imported shell and ivory nuts for other types of buttons are short, (3) the manufacture of plastic buttons must be reduced on account of a shortage of formaldehyde, and (4) copper and other metals are needed for more important articles than zippers. Edible gelatin, in spite of the advertising, is not an absolutely essential article of diet. If given the opportunity, however, gelatin manufacture could easily preempt the entire supply of bones. Hence the efforts of the civilian allocation authorities to divert the bones to the humbler spheres of glue and buttons, even at the risk of putting a crimp in the big red letters on the box. Hence, also the interference with the normal functioning of price.

This audience does not need to be told that the task of price administration is going to be a tough one and an interesting one. We who have been given the job don't need you or anyone else to tell us what we are up against or that we are going to make mistakes. We have already had enough experience to be fully aware of those facts.

In view of the legislation pending in congress, the activities and policies of the Office of Price Administration are very properly being subjected to intense scrutiny. If protection of the American economy from the desperate consequences of inflation is to be entrusted to any organization, it is only reasonable that the actions of that organization should be reviewed for the purpose of determining what its policies have been and of forecasting what may be expected in the future.

Dangers of Inflation

To my way of thinking, a very significant characteristic of price administration to date is the reliance which has been placed on voluntary action by industry in preference to rulings imposed by authority. A number of reasons for this attitude might be adduced, but to me, one of its most important aspects is its reflection of a fundamental unity between industry and the administration as to the vital necessity of putting a stop to inflation before it gets a start. Nobody wants a repetition of what has occurred during and after every major war, and especially not of what we all remember during the period 1915-1921. So vivid is the recognition of the importance of this effort that far-seeing businessmen are entirely willing to sacrifice some apparent temporary advantage to be gained by raising the prices of their particular products for the sake of the far greater long-run gains of price stability. Thus our staunchest supporters are the very people who would appear to be in a position to gain most by a breakdown of the price control machinery.

It might be supposed that voluntary agreements were resorted to because of the lack of specific legislative authority to control prices—in other words, that they are a sign of weakness. As a matter of fact, quite the contrary is probably true. I look for a greater rather than a smaller use of the voluntary method after price control legislation is passed. The paper industry affords, in its several branches, excellent examples of the advantages of voluntary agreements and, I am sorry to say, at least one example of a total failure of this procedure.

A study of the prices with which we have thus far been chiefly concerned reveals a determination to put first things first. Three kinds of prices have engaged our principal attention: those which have the broadest effect upon the economy as a whole, such as steel and other basic raw materials; those which are most volatile and subject to speculative influences, such as secondary metals and items traded in on the commodity exchanges; and, finally, those which constitute the costs for later stages in production. This last pre-occupation is one of our most important sources of strength, whenever it is possible to show converters and fabricators that we have been of assistance in keeping costs down.

It would be a mistake to assume that the Office of Price Administration is interested only in low prices. We intend to keep prices down, but not at the expense of production. In certain cases we have watched prices rise with the greatest equanimity, because it was evident that only by increases in price could we obtain that expansion of production which is the basic requirement of the defense effort and, in the long run, of price stability. Such cases are few, however, and it is equally true that in many fields increased prices do not bring out added supplies. In fact, the expectation of increasing prices serves to dry up supplies by giving rise to inventory accumulations and speculative hoarding. One of the best cures for hoarding is a certain knowledge that the price is not going up.

Justifiable Price Increases

A cardinal principle of OPA is that price increases solely caused by increased demand will not be tolerated. Where price increases are not justified either by increases in costs or by the reasonable hope of increased supply, but are solely occasioned by the fact that supply is short as compared to demand, no sympathy need be expected. Sometimes the party who increases his prices under these circumstances says that he is merely trying to discourage excessive demand—he is merely fighting off too insistent customers. However effective such a move may be in normal times, it has no effect now. Demand is inelastic. The buyer will pay whatever is asked in order to assure himself a supply. Buyers are, in many cases, just as guilty as sellers of pushing prices up. When a user of a raw material sees his inventory slipping, and he is afraid of shortage of transport and other problems of supply, he is likely to bid prices up. That in fact, is perhaps the most serious single problem of price administration.

Two other attitudes of OPA with regard to causes or excuses for price increases are worthy of comment. One is that, although we recognize the importance of actually sustained increases in costs, we look very unsympathetically at the notion that prices must be increased now to take care of vaguely defined cost increases which are expected at some indefinite time in the future. We fully appreciate the forward seller's difficulties, but both the common practice of quoting no prices at all and that of adding a substantial cushion to cover unforeseen events are direct roads to the inflation and spiralling of prices which it is our job to prevent. Both practices are an open invitation to step in with a price schedule.

Another argument with which we are frequently confronted is that the particular concern or particular industry has suffered heavy losses over past years and must now be allowed to make these up. A variation of this is the argument that the industry in

question is one in which seven lean years follow every fat year. This—the year 1941—is the proverbial fat year, and we must let industry put on a little fat to take care of the lean years ahead. There are several answers. One is that, after all, this fat year is a result of the defense program. It is not a natural, but an artificial business boom. The principle has been enunciated that we are to have no war-time millionaires. The putting on of fat, therefore, must be in strict moderation. Another answer is that already the Congress has made the putting on of fat a pretty difficult operation, and that the surest way of creating sentiment for making it impossible is the attempt to obtain abnormal profits by excessive prices.

My particular responsibility in the OPA is the cost aspects of price control. The cost accounting staff of OPA, which started out with one man in June of 1940, now numbers approximately 30, with more being added daily. Most of the time of these people is being spent on the problems of individual firms which for one reason or another find themselves in some special position with respect to price agreements or price schedules. Industry-wide surveys have, for the most part, been conducted for us by the accounting staffs of the Tariff Commission and the Federal Trade Commission. Many of you will recall that accountants employed by the Federal Trade Commission carried on most of the cost studies in connection with price control during World War I. For this purpose they employed a staff of some 300 accountants.

The cost accounting or, more precisely, cost analysis work in connection with price control may be roughly divided into three categories. The first consists of cost studies made in contemplation of either formal price schedules or voluntary ceiling agreements. No such arrangement is ever entered into without giving consideration to the cost factors involved although nothing like an exhaustive cost study is undertaken at this stage.

The second variety of cost study takes place after the schedule or agreement has been established. Its purpose is to discover how the prices are working and to prepare the ground for revisions or modifications. Such surveys may be industry-wide in scope, but they are ordinarily carried on by means of sampling. Concerns are chosen for study with an eye to obtaining representation as to size, location, variety of products, and methods of operation. Based on such studies are decisions as to the adequacy of the chosen prices to yield a fair return, the reasonableness of differentials based on grades of product, quantities of sales and other factors, and the desirability or necessity for raising or lowering the established levels of prices.

The third kind of cost study deals with the problems of individual enterprises. In its most complete form it involves a thorough examination of costs, sales, markets, operating problems and policies, and financial history and position. The purpose is to discover whether the particular concern requires relief or other special treatment in connection with established price schedules or announced price policies. Usually such studies result in some sort of adjustment for the particular concern, but they occasionally show the need for changes in the price schedules or price policies.

These individual studies have, up to the present, taken a very large portion of the time of the accounting staff of OPA. They unquestionably constitute the most interesting part of our work, because they comprehend the whole range of business analysis and not merely a study of accounting data.

Such studies originate most frequently after an official price schedule has been promulgated. Price schedules necessarily apply to everyone in an industry on a uniform basis. However, it is recognized that such universal rules, if inflexibly applied, may result in serious hardships to individual concerns. Hence an invitation is always extended to present such hardship cases for special consideration. Figures and other data are examined; legal, marketing, and engineering considerations are given due weight, a report is written, accompanied by a recommendation to the Administrator that the particular type and extent of relief desired should or should not be granted. Such relief has already been extended in a considerable number of cases.

It can be easily be imagined that the detailed problems of the relation of costs to prices which have already been encountered would fill a good-sized book. One of the most fascinating parts of our job lies in the fact that we must look into the future—we must try to see how a certain set of circumstances and a certain course of action may be expected to affect both the financial status of our "clients" and the supplies of the commodities which we want them to produce. A highly developed imagination is an essential qualification for employment in our accounting division.

I always like to spend a few minutes of each talk I give speculating on what are our chances of doing a respectable job of controlling the inflationary spiral. No one supposes that we can do a perfect job. The problems are too complex and the forces at work too powerful. There is much evidence already, however, that the Price Stabilization Division was not established in May, 1940, entirely in vain. It is easy to point to specific prices which are lower today than they would have been without our efforts.

Our greatest source of strength lies in the fact that the long-run self-interest of every element of society has a huge stake in our success. The farmer will not profit by higher prices for his products if the prices of everything he buys go up correspondingly. The worker's economic status is not improved unless his real wages are maintained. The business man remembers with a shudder the inventory writedowns of 1920 and 1921. Our greatest weakness lies in the fact that many of these people have the idea that somehow they will be able to get their prices up while others stay down—the idea that somehow they will be able to steal a march on the other fellow. Price control receives their whole-hearted support—when applied to their neighbor's prices!

In spite of obvious difficulties and complexities, in spite of many disappointments already experienced, I continue to be moderately optimistic. We have studied the experience of other nations and of the last war assiduously. We think we know where some of the mistakes were made and how to avoid them. We have gotten a much earlier start than did our predecessors in 1917, and we already have a veteran organization. Accounting and statistical data are much more complete, reliable and available than they have ever been before. Other powerful government agencies are solidly back of the fight against inflation and are in a position to supplement our efforts by actions tending to cut down demand or to increase supply. With all these things in our favor we at least have a fighting chance.

MAYBE REMOVING CALENDER PLUGS BY HAND ISN'T SUCH A SMART IDEA!

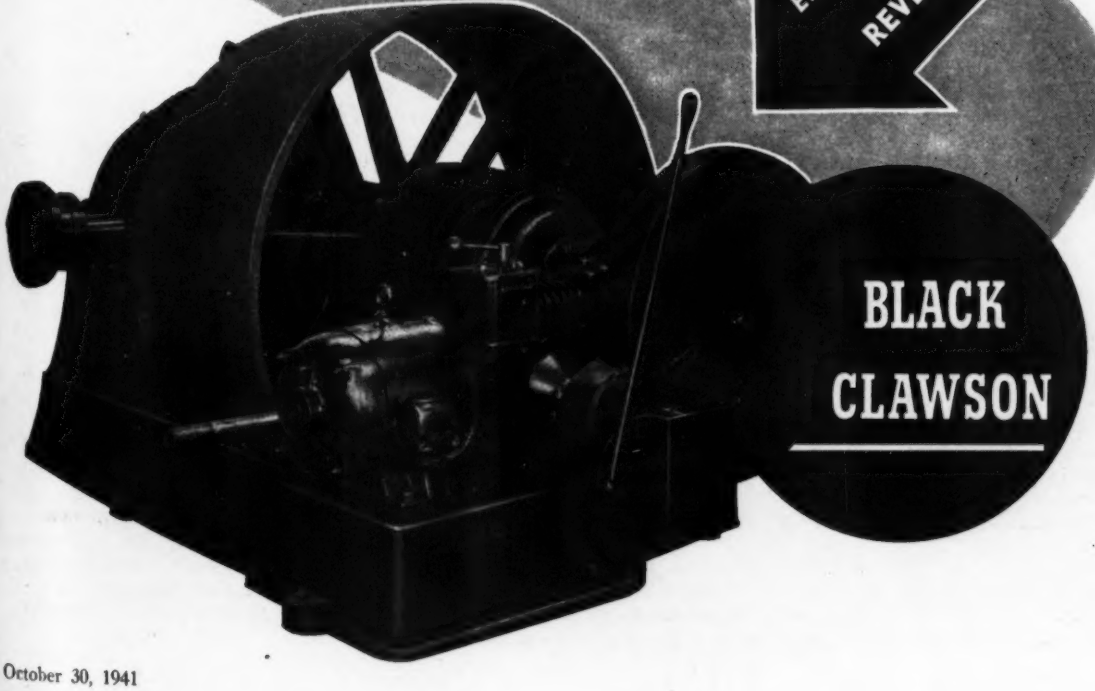
● A slight miscue and a key workman may be injured while removing a calender plug by hand. When you consider the effect on the moral of employees . . . when you check up on the actual monetary loss to your mill —there is only one conclusion: hand removal of plugs should no longer be tolerated.

And especially when this danger spot can be eliminated by the Black-Clawson calender reversing drive. This drive is a typical B-C product . . . vibrationless, powerful, trouble-free. Operate a few simple controls and you do the job not only quicker, but with the mill hand nowhere near the danger spot.

Full information awaits your request.

The Black-Clawson Co., Hamilton, Ohio
SHARTLE DIVISION, MIDDLETOWN, OHIO
DILTS DIVISION, FULTON, N. Y.

End This Danger Spot With CALENDER REVERSING DRIVES



BLACK CLAWSON

Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 29, 1941—Government Printing Office has received the following bids for 100,000 pounds of hard rolled binder's board: Consolidated Paper Company, 4.5 cents less 2%; R. P. Andrews Paper Company, 4.14 cents.

For 59,156 pounds of 35 x 50 white plate finish cover paper: Whitaker Paper Company, 14.5 cents; Mudge Paper Company, 14.5 cents; Bradner Smith Company, 14.346 cents; Stanford Paper Company, 14.24 cents; Barton, Duer & Koch Paper Company, 12.5 cents; and R. P. Andrews Paper Company, 13.09 and 9.5 cents.

For 30,000 sheets of 22 x 28 blue railroad board: Barton, Duer & Koch Paper Company, $36.85 per M sheets; R. P. Andrews Paper Company, $37.23; Paper Corp. of U. S., $38.50; Old Dominion Paper Company, $37.239; Mudge Paper Company, $31.00; Virginia Paper Company, $39.50; and Bradner Smith & Company, $36.9646.

For 14,122 pounds of 38 x 48 dull coated book paper: John F. Post, Inc., 10.18 cents; Barton, Duer & Koch Paper Company, 12.75 cents; and Mudge Paper Company, 11.4 cents.

Paper Awards

Mudge Paper Company has been awarded the contract for furnishing the Government Printing Office with 9,047 pounds of 32 x 49 jute tag board at 11 cents, bids for which were received on September 29.

Same firm will also furnish 68,000 pounds of 34 x 44 colored sulphite index paper at 10.65 cents. The same will also furnish 38,303 pounds of 33 x 48, 25% rag, buff ledger paper at 15.65 cents. Marquette Paper Company will furnish 93,500 pounds of 32 x 42 white index writing paper at 9.64 cents and Barton, Duer & Koch Paper Company will furnish 15,100 pounds of 31 x 38, 50% rag, white bond paper at 15.9 cents. Bids for these items were received on October 1.

Bradner Smith & Company will furnish 200,000 sheets of 22 x 28 white railroad board at $27.075 per M sheets. Also Barton, Duer & Koch Paper Company will furnish 20,240 pounds of 50% rag, 22½ x 28½ salmon index paper at 17.1 cents. Same firm will also furnish 23,000 pounds of same buff at the same price. Eastern Corp. will furnish 100,000 pounds of white sulphite writing paper in 25½ inch rolls at 7.79 cents. Bids for these items were received on October 3.

R. P. Andrews Paper Company will furnish 44,060 pounds of various sizes chemical wood manila paper at 7.25 cents. Bradner Smith & Company will furnish 20,000 sheets of 22 x 28 red railroad board at $36.95 per M sheets. Bradner Smith & Company will furnish 33,800 of 28 x 41 dull coated book paper at 9.98 cents. Bids for all of these items were received on October 6.

Mathers-Lamm Paper Company will furnish 56,000 pounds of 25 x 30 binders board at 4.17 cents, bids for which were received on October 6.

Old Dominion Paper Company will furnish 51,200 pounds of 34 x 44, 25% rag, white bond paper at 13.489 cents and the same firm will also furnish 4,875 pounds of 24 x 38, 100% rag, white bond paper at 27.49 cents. R. P. Andrews Paper Company will furnish 120,000 pounds of No. 1 hard rolled binder's board at 4.14 cents. Bids for these items were received on October 13.

Powell River Opens Dept. Store

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., October 25, 1941—Erection of the big new department store of the Powell River Company at the pulp and paper town of Powell River, B. C., has now been completed. The firm will operate this section of its business as the Powell Stores Ltd., and make its merchandise available to both employees and citizens of Powell River and district.

The building is of extremely modern architectural design and is two stories in height. It is located on one of the steep hills leading down to the plant, and thus both floors have their entrances on street level. There is a curving level walk which runs around two sides of the building beneath the streamlined canopy. This walk is flanked by display windows.

The upper floor will accommodate the cash and carry grocery, meat, vegetable and hardware departments, and is laid out on modern self service lines, although a sufficiently large staff is maintained to provide any desired service for customers. The lower floor is finished more in the style of a high class department store fashion floor, with space allocated to ladies wear, men's wear, shoes, notions, stationery, etc. Ample space is provided for each department with suitable storage facilities to permit easy and quick access to reserve stocks.

The exterior of the building is finished in vitrolite and plywood with very large plate glass windows. The interior is of lath and plaster construction with floors covered in asphalt tiles. Modern lighting fixtures have been installed and the building is entirely air-conditioned. Fixtures are a symphony in moderne treatment of natural birch and plate glass, and the store is actually one of the most modern on the coast.

"Corroflex Saves for Defense"

"Carry the message to Garcia," which became famous during the Spanish-American War, receives a new counterpart in World War II in the slogan "Carry the Message to Industry" which keynotes a campaign by the Sherman Paper Products Corporation, Newton Upper Falls, Mass., designed to relieve the drastic shortage in shipping containers.

Keynote of the campaign, which is educational in nature, is a large portfolio showing photographs selected from nearly one hundred major manufacturing and distribution groups. Each shows an application of Speed-Packing with Corroflex, Sherman's flexible corrugated material. Other contents include factual and operating information on packing for shipment. These portfolios will be used by Sherman regional packaging engineers and distributors.

To help distributors carry this message to industry, patriotic stickers have been prepared with the slogan "Corroflex Saves for National Defense," together with photographic Data Sheets, showing step-by-step operations in packing, for distribution to defense industries.

OPM DIRECTS MILLS TO CUT WASTE PAPER USE

(Continued from page 7)

method of allocation to individual consumers of waste paper, to effect an equitable distribution of available supplies thereof:

REGULATIONS INCORPORATED IN THIS ORDER

(1) Except as expressly modified by the terms of this order all of the provisions and definitions of Priorities Regulation No. 1, Part 944, is issued August 27, 1941, by the Director of Priorities, as amended from time to time, are hereby incorporated in and made a part of this Order, as fully and with the same effect as if specifically herein set forth.

DEFINITIONS AND SCOPE OF ORDER

(1) "Consumer" means any mill or plant engaged in the production from waste paper of (i) paperboard or (ii) roofing mill products, located in the continental United States east of a line running from the Canadian border through and including Buffalo, New York, Pittsburgh, Pennsylvania, and Tallahassee, Florida, to the Gulf of Mexico.

(1) The provisions, restrictions and limitations of this Order shall apply to the use, purchase, receipt, and consumption of waste paper only insofar as the same relate to the production by a Consumer of (i) paperboard or (ii) roofing mill products.

COMPUTATION OF "BASE" BY GRADES

(1) Each Consumer shall immediately compute its "base" by grades of waste paper in the following manner:

(i) Each Consumer who has produced paper board or roofing materials from waste paper for five weeks or more during the ten-week period ending 7:00 A.M., October 4, 1941, shall total such waste paper consumption for the five peak weeks in such period, and determine therefrom its weekly average of consumption, classifying the same in the following grades: mixed, news, container (old corrugated and solid fiber boxes), all other.

(ii) Each Consumer who has produced paper board or roofing materials from waste paper for less than five weeks during the ten-week period ending 7:00 A.M., October 4, 1941, shall total its waste paper consumption during the weeks of such production in such period and determine its weekly average of consumption, classifying the same in the grades set forth in (c)(1)(i).

(iii) Each Consumer who has not produced paper board or roofing materials from waste paper during the ten-week period ending 7:00 A.M., October 4, 1941, shall estimate its weekly consumption of waste paper when producing at peak capacity, classifying the same in the grades set forth in (c)(1)(i).

LIMITATIONS ON USE, ETC. OF WASTE PAPER

(1) During the week commencing 7:00 A.M., October 25, 1941, and for each week thereafter until the week ending 7 A.M., November 22, 1941.

(i) Each Consumer shall use not more than 90% of its "base" in each grade of waste paper, computed as provided in (c) above.

(ii) Any Consumer having an inventory of waste paper in any grade equal to or in excess of its established "base" shall purchase or receive not more than 66⅔% of such "base" in such grade of waste paper.

(iii) Any Consumer having an inventory less than its established "base" in any grade shall purchase or receive not more than 90% of such base in such grade.

REPORTS TO BE FILED

(1) Each Consumer shall make the following reports:

(i) Immediately after the issuance of this Order, a report for the ten-week period ending 7:00 A.M., October 4, 1941, of its total consumption of waste paper, classified in the following grades: mixed, news, containers (old corrugated and solid fiber boxes), all other.

(ii) Immediately after the issuance of this Order, a report of "base" by grades computed under (c) above.

(iii) Commencing Monday, October 27, 1941, and on each Monday thereafter until and including Monday, November 24, 1941, a report covering the weekly period ending 7:00 A.M., Saturday prior to each reporting date, indicating for each grade of waste paper specified in (c) (1) (i): A. Total inventory at the beginning of the weekly period. B. Total receipts during such weekly period. C. Total consumption during such weekly period.

(iv) Said reports shall be filed with the Pulp and Paper Branch of the Office of Production Management, Washington, D. C.

EFFECTIVE DATE AND EXPIRATION

This Order shall take effect upon the date of its issuance and shall expire on the 22nd day of November, 1941, unless extended by the Director of Priorities, provided that (e) (1) (iii) shall be effective until the 24th day of November 1941.

Emulsions and Foams

Emulsions and Foams is an interesting 600-page book by Sophia Berkman and Gustav Egloff of the Universal Oil Products Company, Research Laboratories, Chicago, published by the Reinhold Publishing Company.

Although some industries such as medicine and foods are interested in developing foams and emulsions, others such as the paper and metallurgical find them to be a nuisance at times. This book provides a theoretical and practical background desirable in overcoming these difficulties.

Among the subjects covered are surface tension, viscosity, electric charge, size of particles of the disperse phase and the distribution of sizes in an emulsion system as factors relating to the stability of emulsions, adsorption of the emulsifying agent at the interface, film formation origin and mechanism of foam formation, surface activity, influence of electrolytes, action of protective colloids, methods of preparing emulsions, resin soaps, water soluble gums, colloid mills, demulsification methods, asphalt and bitumen emulsions, lubricants, laboratory methods, etc.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York, N. Y., at $8.50 per copy.

Obituary

Coulter D. Young

Coulter Dobney Young, secretary of the International Paper Company, died at Roosevelt Hospital, New York, on October 23.

Mr. Young was born on August 26, 1890, in Washington, D. C., and was the son of the late Edwin M. S. Young of Pittsburgh and Cora Coulter Young.

He was graduated from Yale College in 1912 and Yale Law School in 1915. Immediately after leaving school he became assistant to the General Solicitor of the United States Steel Corporation. During the first World War he served with the Department of Justice. At the conclusion of the war he entered the law office of Stetson, Jennings and Russell (now Davis Polk Wardwell Gardiner & Reed) of this city, with which firm he practiced law until 1928, except for a few years during which he was engaged in legal work for the American Trading Company. In the latter year he joined the International Paper Company where he held the position of Secretary of International Paper Company, International Paper and Power Company, and numerous affiliated companies in the International Paper Company system. He was for many years active as president of the Point O'Woods Association, and it was due to his efforts that many developments in that community were carried out. His clubs included the Yale Club, Point O'Woods Yacht Squadron and Great South Bay Yacht Racing Association. He was a member of the Sons of American Revolution.

Surviving are his widow, Myra Robinson Young, to whom he was married in 1918, and two sons, Coulter Dabney Young, Jr., and Seymour Robinson Young.

Funeral services were held in the chapel of the Riverside Church, Riverside Drive and 122nd street, New York, on Sunday, October 26. Interment was private.

Karl F. Miller

Karl F. Miller, 58, of Turners Falls, Mass., treasurer of the Keith Paper Company, plunged to his death from a balcony at Northampton State Hospital Oct. 16, it was revealed belatedly today.

Dr. Guy Randall, a staff member, said Mr. Miller was being escorted to the dentist's office on the second floor of the building when he broke from attendants and leaped over the rail. His body struck 25 feet below in the main hall.

Mr. Miller, who had been ill several months and was a former patient at the Brattleboro, Vt., hospital, entered the Northampton institution September 30. He was a past president of the Turners Falls Rotary Club, director of the Crocker Institutions for Savings and was widely known in western Massachusetts fraternal circles.

Wellington G. Reynolds

HOLYOKE, Mass., October 27, 1941—Wellington G. Reynolds, 61, of 22 Taylor street, South Hadley Falls, treasurer and general manager of the Reynolds Manufacturing Company, died Oct. 24 at the Holyoke Hospital after a long illness.

He was born at Standstead, Que., and was graduated from Wesleyan College in 1899. Coming to Holyoke in 1900, he was office manager for the Taylor Burt Company, and later manager of the Highland Manufacturing Company. He was also treasurer of the Papercrafters Public School Division, Incorporated, and served on the code authority of the stationery business. He was president of the Eastern Envelope Manufacturing Company, Springfield, and had served on the South Hadley school board.

He leaves his widow, Jessie H. (Clark) Reynolds, one son, N. Stuart Reynolds of South Hadley Falls; two daughters, Mrs. Paul Thomas of Valley Falls, N. Y., and Mrs. Phillip Atwood of Terryville, Conn.; four brothers, M. C. Reynolds of Beebe, Que., John M. of Southampton, Harry D. of Holyoke and Worthington J. Reynolds of Bridgeport, Conn.

Buys Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 29, 1941—For the week ending October 17, the government purchased $520,118.28 worth of paper under the Walsh-Healey act, with the following orders:

$232,807.89 worth of fiber containers for War Ord. Phila., from Cleveland Container Company; $11,528.64 worth of cards and clips for War QMC Cal., from Schwabacher-Frey Company; $12,525.13 worth of mimeo paper for War QMC N. J., from Marquette Paper Company; $10,201.44 worth of same for War QMC N. J. from same company; $19,470 worth of mimeo paper for War Air Corps from Paper Corporation of America; $18,000 worth of mimeo paper for same, from Walker Goulard Plehn Company Inc.; $16,262.40 worth of book paper for GPO from Marquette Paper Company; $18,777.50 worth of bond paper for GPO from Whiting Paper Company; $15,294 worth of book paper for GPO from Marquette Paper Company; $14,100 worth of book paper for GPO from Mudge Paper Company; $10,440 worth of mimeo paper for TVA from Knoxville Paper Company; $11,970 worth of file folder for Treas. Proc. from Geo. W. Miller & Company Inc.; $44,100 worth of toilet tissue for Treas. Proc. from Gotham Tissue Corporation; $10,225 worth of staples for Treas. Proc. from Speed Products Company; $17,973 worth of toilet paper for Vet. Admin. from Resolute Paper Products Corporation; $11,708.28 worth of mimeo paper for Treas. Proc. from Bulkley Dunton Company; $32,280 worth of file folders for Treas. Proc. from Filing Equipment Bureau; $12,455 worth of toilet paper for War QMC N. J., from Hoberg Paper Mills.

Assures Normal Supply of Newsprint

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 27, 1941—The Newsprint Association of Canada, in a communication to United States publishers, has assured them that Canadian manufacturers will see to it that they receive their normal supply. It further points out that in order to ensure such continuity it is imperative that publishers adhere to the practice of taking their requirements in monthly instalments, which method has been found most satisfactory in levelling out newsprint movements as between different seasons.

No Change in Pulp Prices

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Oct. 29, 1941—Three leading producers of wood pulp for sale, acceding to a request by the Office of Price Administration, have withdrawn fourth quarter price increases ranging from $5 to $10 a ton, and the need to impose a schedule of ceiling prices over this important commodity has been obviated for the time being, Leon Henderson, administrator, Office of Price Administration, announced today.

As a result of this latest development, all but one of the pulp producers represented at the October 10 meeting with OPA have become parties to individual agreements not to exceed during the remainder of 1941 the contract prices that prevailed generally during the third quarter. Sole exception is Eastern Corporation, of Bangor, Maine, which has asked for special consideration because of higher costs. This situation is being investigated.

The three companies that have agreed to return to third quarter prices are the International Paper Company, Container Corporation of America and the St. Regis Kraft Company. Each has further agreed to refund to buyers all amounts collected in excess of third quarter prices in the case of shipments made since October 1.

International Paper had announced increases of $5 a ton, raising paper grade kraft pulp to $65 and board grade to $60; Container Corporation had advanced its Conus brand kraft pulp from $60 to $70 a ton; and St. Regis kraft had quoted a price of $87.50 a ton for its Tacoma brand bleached kraft, an increase of $5, for the month of October, proposing to determine later its new prices for the remainder of the year.

"The action of International Paper, Container Corporation and St. Regis Kraft in returning to their third quarter prices is most gratifying," Mr. Henderson stated. "It represents a very real contribution to the efforts of OPA to maintain a stable price structure in the wood pulp industry."

Leading grades of pulp covered by the voluntary agreements and the maximum fourth quarter prices follow: Bleached sulphite, bond, and book, $72.50 a ton, ex dock Atlantic seaboard; soda pulp, $66.00 a ton, delivered; bleached Southern and bleached Northern kraft, $82.50 a ton, ex dock Atlantic seaboard; and groundwood, $40.00 a ton delivered. These are representatives of contract prices charged during the third quarter. In the case of unbleached Northern and Southern kraft, each producer has agreed not to exceed the September quarter contract prices. In respect to all other grades of pulp, the differentials in effect during the third quarter will be retained throughout the remainder of 1941. Export prices, according to the understandings, will not exceed those charged during the third quarter.

OPA plans to call a meeting of pulp producers sometime in November to discuss contract prices for the first quarter of 1942. By that time it is expected that OPA's pulp industry investigation will have been completed. Originally it had been proposed to hold this meeting in December, but the time has now been advanced in order not to interfere with the arrangement of new first quarter contracts which usually takes place in December.

Gair Old Timers Meet

The Ninth Annual Banquet of the Gair Old Timers Association was held on October 18, 1941, in the Grand Ballroom of the Hotel New Yorker, New York City. This unique association was founded in 1933 in memory of Robert Gair by those who had worked for Mr. Gair or his company for a period of years. There are no dues, regulations or obligations, but the interest in the association has continued unabated since its founding. Over one hundred Gair and ex-Gair men have attended the banquet each year, and last week 132 sat down together at the annual dinner.

The officers for 1941 were: Honorary president, Lawrence Beattie, Gair Realty Corporation; president, Paul Lang, Continental Folding Box Company; vice-president, Walter Ringle, Robert Gair Company, Inc.; secretary-treasurer, H. B. Van Antwerp, Sinclair & Valentine Company.

Officers for the coming year were elected at the dinner, as follows: honorary president, Frank G. Wasgatt, retired, whose employment began in 1891 and continued throughout his business career; president, Walter E. Ringle, Robert Gair Company, Inc.; vice-president, Charles Burke, Bogota Paper and Board Corporation; and H. B. Van Antwerp was re-elected secretary-treasurer.

Following the usual precedent, the decoration of the banquet room consisted of photo murals of groups of employees of earlier years and pictures of Mr. Gair. This collection increases in size and interest each year.

Mr. Lang, the retiring president, reminded the association that the next dinner will be the tenth and special plans are already under way to make it a memorable occasion. Mr. Ringle, the new president, made a short speech of acceptance.

Powell River Gives Bonus

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., October 25, 1941 — Powell River Company, Powell River, B. C., announce that due to the latest rise in the cost of living index, 1450 employees would receive a cost of living bonus of $1.25 weekly, retroactive to October 1st.

The bonus is the second to be received by paper mill employees there, a similar $1.25 bonus being awarded last May, when the cost of living index stood at 109.9.

According to a labor agreement signed then with the International Brotherhood of Papermakers and International Brotherhood of Pulp, Sulphite and Paper Mill Workers, the next bonus was to become effective when the cost of living index reached 115. Latest figures issued by the Dominion Bureau of Statistics set the index at 114.7.

Vote Against A. F. L. Unions

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 27, 1941—Employees of the Rhinelander Paper Company, Rhinelander, Wis., voted 263 to 248 last week against representation by two AFL affiliated unions in collective bargaining. The voting was supervised by Edward J. Brophy, field examiner for the National Labor Relations Board.

James Fish Joins Brown Co.

James Fish, known as one of the outstanding paper makers in America today, has joined Brown Company's Technical Service Department, according to an announcement released by H. E. Houghton, general sales manager of the company.

Mr. Fish will be available to assist Brown Company customers in solving paper making problems arising from the unusual demands currently facing the pulp and paper industry. It is recognized that such industry steps as the reduction of the use of chlorine in bleaching, the lowering of paper basis weights and changes in furnishes create a definite need on the part of paper mills for the type of help that Mr. Fish is qualified to give.

The addition of Mr. Fish to the Technical Service Department is the natural development of a policy of customer service inaugurated in 1927 with the

JAMES FISH

formation of this department within the Brown Company Pulp Sales Division. The company manufactures a complete family of quality wood pulps grouped into four basic types known as "The Four Cornerstones of the White Paper Industry." This family of pulps was developed to provide fibers for all high grade papers.

Because of the technical knowledge required to advise customers how to blend these fibers for best results, Brown Company maintains its own sales organization, which stems from the original Technical Service Department. Each salesman is technically trained to advise customers on pulp furnishes for their papers. Mr. Fish will broaden the technical function of the present organization with his unique practical paper making knowledge and long experience.

Mr. Fish will function directly under N. L. Nourse, manager of Brown Company's domestic, Canadian and foreign pulp sales. Customers interested in availing themselves of Mr. Fish's services will get in touch with Mr. Nourse at Brown Company's general sales office, 500 Fifth avenue, New York City.

Telling About Employee Relations

Employee relations are today management's most important concern. Indicative of the increasing importance management attaches to industrial relations is the growing practice of reporting to stockholders company personnel policies and programs.

To determine the extent to which companies are informing the owners of the business about personnel activities, the Policyholders Service Bureau of the Metropolitan Life Insurance Company reviewed the annual reports of 235 companies for 1938 and 1939 and studied other methods employed for this purpose. The results of this investigation are presented in a special report entitled "Telling Stockholders About Employee Relations."

More than two-thirds of the annual reports of these companies, this study reveals, contain information on employee relations. Concrete evidence of the growth of this practice is revealed by the fact that five years earlier in a similar study, only one-fourth of the companies whose reports were studied gave such information to stockholders. Particularly illuminating is a table listing 65 industrial relations subjects found in present-day stockholder reports, and comparing the frequency with which such topics were discussed in annual reports for the years 1934 and 1935.

Annual reports are the most commonly used means for informing stockholders of personnel activities, and a major portion of the Bureau's study is devoted to analysis of this medium. Case examples are presented showing how companies treat such subjects as personnel policies, labor economics, review of personnel activities, new personnel problems, employee recreation, and labor costs. Several illustrations from annual reports are reproduced in this study.

The present survey also covers other methods for giving stockholders information on employee relations. It discusses interim reports, dividend enclosures, and special booklets, citing examples of each of these methods.

This report is available to executives who address the Bureau on their business stationery. Address: Policyholders Service Bureau, Metropolitan Life Insurance Company, 1 Madison avenue, New York City.

Heavy Loss by Forest Fires

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 27, 1941—According to the Minister of Lands and Forests for Quebec, forest fires in this province this year have destroyed the timber on 1,800,000 acres of wooded land, including 590,000 acres of commercial timber claims. During the years 1919-1941 inclusive, the province lost more than 2,000,000 acres of commercial bush country through fire, representing an estimated loss of $15,000,000, he said. The total area ravaged by flames in the same period was about 9,300,000 acres.

Brown Offices to be at Berlin, N. H.

The Trustees of the Brown Company announce that on and after December 2, the main office of the company will be at Berlin, N. H. All departments will be located at Berlin with the exception of the sales department which is at 500 Fifth avenue, New York.

Dinner for Jewish Charities

The traditional annual dinner of the pulp and paper industry on behalf of the 116 hospitals and other agencies affiliated with the New York and Brooklyn Federations of Jewish Charities, will be held at the Hotel Biltmore, on Wednesday, November 12, Morris Gintzler, of the Pulp and Paper Trading Company, chairman, announced today. Mr. Gintzler and the co-chairman, Joseph Mazer, of the Hudson Pulp and Paper Corporation, said that a record attendance is expected.

Isaac Gilman, Gilman Paper Company, is honorary chairman. The honorary vice-chairmen are Henry Nias, Lily Tulip Cup Corporation, and D. Samuel Gottesman, Gottesman & Co., Inc. Joseph Mazer is chairman of the dinner committee. The treasurer is Milton Collier, of the Pennsylvania Exchange Bank.

Vice-chairmen of the various branches of the pulp, paper and twine field are: Bag Manufacturers, Benjamin Mintz, Trinity Bag and Paper Company; William Salzman, Brooklyn Standard Bag Company. Wrapping Paper Jobbers, Robert J. Rudnick, Jack Weill, Mutual Paper Company; George Stoll, Reliance Paper and Twine Company.

Also Paper and Bag Jobbers, Hyman Schrier, Isaac Schrier, Schrier Brothers; Cosmopolitan Twine and Paper Association, Samuel J. Fishman, Finkel Paper Company; David Kasson, Cosmopolitan Twine and Paper Association; Meyer Schwartzapel, Harlem Paper Products Company. Paper Box Division, Jacob Sincoff, Empire Box Board Company; Jacob S. Gleckel, Eagle Paper and Twine Company.

Specialty Paper Division, A. R. Melker, A. R. Melker Company, Board Division, Joseph H. Simon, Ace Paper Company; Twine Division, Charles G. Strisik, Empire Twine and Yarn Company; Metropolitan Paper Distributors Association, Milton Posner, S. Posner Sons, Inc.; Louis Silfen, Benjamin Silfen & Sons; Arthur Stein, Yorkville Paper Company; Tissue Paper Mills, Victor Cohen, Sam Wishnick, Park Tissue Mills; and Isidor Baum, Asland Paper Mills.

The executive committee is made up of Charles Ballin, Gilman Paper Company; Philip S. Elkins, Adams Paper and Twine Company; Max A. Finkel, Finkel Paper Company; Jacob P. Galewitz, Clinton Paper Company; Morris Gold, Southern Kraft Corporation; Nathan Heit, San-Nap-Pak Company, and Morris Katz, Kary-Safe Paper Bag Company.

Also Jacob Linetzky, West Shore Twine and Paper Company; William Mazer, Hudson Pulp and Paper Company; Albert Newman, Newman-Kohn Paper Company; Fred E. Ruhling, Lily Tulip Cup Corporation, Nathan Salwen, Jos. Salwen Paper Company; William M. Salzer, Salzer Paper Trading Company; A. L. Scharf, Zellerbach Paper Company; Charles H. Schaffer, Charles H. Schaffer Corporation, Max Schlanger, West Shore Twine and Paper Company; Bernard Sharp, Sharp Paper and Specialty Company: Benjamin I. Sheldon, Gottesman & Co. and Michael Sincoff, Empire Box Board Company.

Hamilton & Son Close Boston Office

BOSTON, Mass., October 27, 1941—W. C. Hamilton & Sons, Inc., of Miquon, Penn., have given up their Boston office at 89 Broad street, of which Norman E. Scott was in charge.

New Literature

Worm gear, speed reducers are described in an 8-page booklet issued by The Cleveland Worm and Gear Company, 3277 East 80th street, Cleveland, Ohio. It quotes a series of letters from executives in various industrial plants where the company's drives have been in use from 15 to 20 years.

Chemical pumps and proportioners are discussed in Catalogue No. 941, issued by Milton Roy Pumps, 1356 East Mermaid avenue, Chestnut Hill, Philadelphia. It describes standard simplex and duplex types for pumping and accurately proporting 1 to 2,600 gallons per hour, against pressures up to 20,000 pounds per square inch. A new plastic pump, suitable for handling weak acid, alum, etc. is also described.

A basic violet color of high strength and known as "Ethyl violet Ax", is announced in a circular issued by the General Dyestuff Corporation, 435 Hudson street, New York. It is said to be well suited for coloring paper made from unbleached pulp, to produce bright shades of bluish violet at low cost, in cases where light fastness is not essential.

Thermometer and pressure gauge accessories are described in a new Catalogue No. 6706-A, issued by The Brown Instrument Company, Wayne & Roberts avenues, Philadelphia, Pa. It presents much useful data for the plant engineer on accessories for the company's line of thermometers, hygrometers and pressure gauges.

Michigan Superintendents to Meet

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., October 27, 1941—An interesting program for the Michigan Division of the American Pulp and Paper Mill Superintendent's Association November meeting to be held at the Park American Hotel on the evening of November 20, has been prepared by the committee.

Jack Amy, a retired papermaker who lives in nearby Kalamazoo, will relate his papermaking experiences in Finland and Russia, where he supervised the construction and operation of the largest paper machine in the world.

Another feature of the program will be a general discussion of felts and water remover equipment by mill superintendents and felt company representatives.

Fire Damages Butler Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

FORT WAYNE, Ind., October 27, 1941—Damage of about $5,000 was caused in a recent fire here, which started from a defective electric elevator motor at the Butler Paper Company building. Roscoe W. Taylor, manager of the company, said the greatest direct loss was on the elevator. Some damage to stock was from smoke and water. The loss is covered by insurance.

George P. Lee Goes to OPM

George P. Lee for many years vice-president of the Eastern Corporation and latterly sales manager of the Parker-Young Company last week accepted an appointment to the Office of Production Management. Mr. Lee is in charge of fine and printing papers.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending October 29, 1941

	High	Low	Last
A. P. W.	....	....	....
Armstrong Cork Co.	29½	28⅛	29½
Celotex Corp.	8⅜	7½	7½
Celotex Corp., pf.	....	....	....
Certain-Teed Products Corp.	3⅛	3	3
Certain-Teed Products Corp., pf.	32⅞	28	30⅜
Champion Paper & Fibre Co.	....	....	....
Champion Paper & Fibre Co., pf.	107	106½	106½
Congoleum-Nairn Co.	17½	17	17
Container Corp. of America	15⅛	14½	14⅞
Continental Diamond Fibre Co.	9⅛	9	9
Crown-Zellerbach Co.	13	12½	12¾
Crown-Zellerbach Co., pf.	91	90	90½
Flintkote Co.	12⅞	12⅛	12⅛
Robert Gair	2½	2⅜	2⅜
Robert Gair, pf.	11	10⅞	11
International Paper & Power	17⅞	17	17¼
International Paper & Power, pf.	68¾	67	67⅜
Johns-Manville Corp.	61	58	58
Johns-Manville Corp., pf.	123	123	123
Kimberly Clark Corp.	29¾	28	29¾
MacAndrews & Forbes	26	25½	25¾
MacAndrews & Forbes, pf.	....	....	....
Masonite Corp.	26⅞	25½	25½
Mead Corp.	7¼	7	7⅛
Mead Corp., pf.	76¼	75¾	75¾
Paraffine Companies, Inc.	28¾	28	28
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	13⅜	13	13
Rayonier, Inc., pf.	28	27⅝	27⅝
Ruberoid Co.	18¾	17¼	18¾
Scott Paper Co.	38⅞	38	38
Scott Paper Co., pf.	112¾	112	112
Sutherland Paper Co.	19	18½	19
Union Bag & Paper Corp.	10⅜	9⅜	9¾
United Paperboard Co.	4⅜	4¼	4⅜
U. S. Gypsum Co.	51½	48½	48½
U. S. Gypsum Co., pf.	176	175	176
West Virginia Pulp & Paper Co.	19¼	18¾	19

New York Curb Exchange

High, Low and Last for Week Ending October 29, 1941

	High	Low	Last
American Box Board Co.	4⅝	4⅜	4⅜
Brown Co., pf.	21¼	20½	21¼
Great Northern Paper	37½	37	37
Hummel-Ross Fibre Corp.	5½	5½	5½
National Container Corp.	11⅛	10⅜	10⅜
St. Regis Paper Co.	2⅛	1⅞	2
St. Regis Paper Co., pf.	112½	108	112½
Taggart Corp.	2¾	2½	2⅝

Masonite Reelects Officers

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 27, 1941—All officers and directors were reelected at the annual meeting of the Masonite Corporation at the First American State Bank building, Wausau, Wis., October 25.

Directors met following the meeting of stockholders and named the following: Ben Alexander, Chicago, president; Robert G. Wallace of Chicago, D. C. Everest of Wausau, John H. Thickens of Laurel, Miss., and E. L. Saberson, Chicago, vice-presidents; Aytch P. Woodson, Wausau, secretary; John M. Coates, Chicago, assistant secretary; M. P. McCullough, Wausau, treasurer; Ben O. Anderson, Chicago, assistant treasurer, and Robert M. Boehm, Laurel, Miss., director of research. All are directors except Mr. Boehm. Others elected as directors were: Charles H. Worcester, Chicago; Charles J. Winton, Jr., Minneapolis; C. C. Yawkey, Wausau, and John Alexander, Jr., Aurora, Ill.

The board voted a dividend of 25 cents per share, payable December 10 to common stockholders of record November 15; also a dividend of $1.12½ per share on preferred stock of record December 1.

President Alexander, in his report to the stockholders, stated that the net profits for the year ended August 31, after deductions for federal and state taxes, for depreciation of plant and equipment, amortization of patents and depletion of timber amounted to $2,101,886.11.

This profit for the year, after deduction of $92,095 for annual dividend requirements on 18,419 shares of 5 per cent preferred stock outstanding, amounted to $1,918,791.11, equivalent to $3.65 per share on 539,210 shares of common stock outstanding as of August 31. This compares with a profit of $2.91 per share for the previous year.

The corporation's plant facilities at Laurel, Miss., are undergoing further expansion to meet the current demands. Sales and executive offices are maintained in Chicago.

Champion Files with SEC

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 29, 1941—The Champion Paper and Fibre Company, Hamilton, Ohio, has filed a registration statement with the Securities & Exchange Commission under the Securities Act of 1933, covering $8,500,000 of First Mortgage Bonds, due November 1, 1956, 40,000 shares of $5 Cumulative Convertible Preferred Stock, without par value, and an undetermined number of shares of Common Stock, without par value, to be reserved for conversion of the preferred. The interest rate on the bonds is to be furnished by amendment.

The net proceeds from the sale of the securities will be applied as follows: $4,310,625 to the redemption, at 104½%, of $4,125,000 principal amount of 4¾% Sinking Fund Debentures, due 1950, and $4,637,037.50 to the redemption, at 102¼%, of $4,535,000 principal amount of 4¾% Sinking Fund Debentures (1938-Issue). The balance of the proceeds will be added to the company's working capital.

W. E. Hutton & Co. and Goldman, Sachs & Co., both of New York City, will be the principal underwriters.

The preferred stock is redeemable after at least thirty days' notice at $110 a share prior to October 1, 1956, and at $105 a share thereafter, plus accrued and unpaid dividends.

The price at which the securities will be offered to the public, the underwriting discounts or commissions, the redemption provisions of the bonds and conversion provisions of the preferred stock are to be furnished by amendment to the registration statement.

Abitibi Earnings Set Record

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 27, 1941—September earnings of Abitibi Power and Paper Company set a new high record for the period since 1936, when G. T. Clarkson, receiver and general manager, started publishing monthly figures. At $1.1 million last month, the total is $146,000 above the previous record set in July, 1940.

A significant point in statements issued for the past two months has been reference to newsprint products included in tonnage figures. This is the spe-

cial paper being made by Abitibi and other Canadian newsprint producers as a substitute for kraft paper and shipped to the United States.

Indicative of how this new product is going to contribute to earnings of the companies making it is the fact that Abitibi's tonnage of newsprint and substitute products for September this year has been exceeded by tonnage shipments for May and June of last year, but earnings in these months were well below the levels of last month.

Promise of even better earnings for October is seen in the forecast of output of newsprint and substitute products at 52,000 tons, apparently an all-time record. Shipments of bleached sulphite pulp so far this year have been well ahead of any previous year.

Monthly earnings figures for September include $157,566 received as premium on United States exchange. They are before allowing for bond interest, including interest on unpaid interest, of $296,641, and depreciation requiring $148,750 monthly.

Gair Co. Earns $978,862

Robert Gair Company, Inc. and United States subsidiaries report for the nine months ended September 30, 1941, a profit after depreciation, interest and dividends of subsidiary company, and provision for federal income and excess profits taxes but before interest on income notes, of $978,862.05.

The provision for federal income tax is $375,000.00 and the provision for anticipated excess profits tax is $225,000.00. These provisions for federal income and excess profits taxes represent three-fourths of the estimated amounts of such taxes for the entire year, computed in accordance with the Revenue Act of 1941.

Gair Company Canada Limited, wholly owned subsidiary of Robert Gair Company, Inc., reports for the nine months ended September 30, 1941, profit of $194,628.49 in Canadian dollars, after provision of $164,000.00 for Dominion and Provincial income taxes.

Due to the discount on exchange of Canadian dollars into United States currency, issue of a consolidated statement of earnings is impractical.

Flintkote Nets $1.94

The Flintkote Company and subsidiaries report, in a statement covering the forty weeks ended on October 4, to be made public today, a net income of $1,390,035 after $1,302,177 provision for Federal, State and foreign taxes, including $645,142 for accrued Federal excess-profits tax. For the corresponding period last year net income was $1,183,352 after estimated Federal, state and foreign taxes of $408,010.

After providing for dividends on the preferred stock since issue, the net was equal to $1.94 a share on 686,196 common shares, against $1.74 a share in last year's period on 678,546 shares then outstanding.

Sutherland Nets $2.05

The Sutherland Paper Company reports for the first nine months of 1941, a net profit of $588,206 after taxes, etc., equal to $2.05 a common share. This compares with $655,784, or $2.28 a share, in 1940 period.

Dr. Evans Speaks at Lawrence College

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 27, 1941—Dr. William Lloyd Evans, president of the American Chemical Society, spoke at a meeting of the Northeast Wisconsin section of the society Wednesday evening of last week at Science hall of Lawrence College, Appleton, Wis. Eighty members and guests were present.

Dr. Evans's subject was "The Chemical Behavior of Reducing Sugars in Alkaline Solutions." The address was especially interesting because of much of the work at the Institute of Paper Chemistry at Appleton deals with cellulose, the more complex of the carbo-hydrates.

M. & O. Co. Nets $1,163,442

The Minnesota and Ontario Paper Company and its subsidiaries in United States and Canada had combined net income of $1,163,442 for the three months ended September 30, R. H. M. Robinson, president, said in the company's quarterly report. Net sales totaled $6,012,252 and production expenses were $4,273,880, leaving gross operating profit of $1,738,391. Net income before income and excess profits taxes was $1,160,288 after deduction of $126,189 for interest on income mortgage bonds. Provision for income and profits taxes was $150,000. National Pole and Treating Company, a 72% owner subsidiary of Minnesota and Ontario Paper Company, showed net income of $161,548 for the nine months.

Container Votes Dividend

Directors of the Container Corporation of America, Chicago makers of paperboard products, this week declared a dividend of 75 cents compared with previous quarterly payments of 25 cents. This brings total payments this year to $1.50 compared with the same amount in 1940. A dividend of 75 cents was authorized in November last year. On the other hand, the Chicago concern found that the rising tax bill was eating up most of its gains. The company had net income of $631,010 in the September quarter compared to $588,004 in the September quarter in 1940. Its federal tax provision for the period was $1,038,072. For the nine months ended September 30, the company earned $1,488,222 compared with $1,527,764 in the same period a year ago.

Oxford Earnings Up

The Oxford Paper Company reports for the three months ended Sept. 30, 1941, net earnings after charges, including taxes, of $341,419 against $200,437 in the same period a year ago. For the nine months this year net was $816,342 compared with $637,571 in the same nine months of 1940.

A. W. P. Nets $194,377

The American Writing Paper Corporation reports for the nine months to September 30, 1941, a net profit of $184,377, against $32,187 in 1940 period. September quarter net profit was $88,642, against net of $682 in 1940 quarter.

CONSTRUCTION NEWS

Phillipsdale, R. I.—Bird & Son, Inc., East Walpole, Mass., manufacturer of roofing and building papers, insulating paper, wall board, etc., has plans maturing for new addition to branch mill at Phillipsdale, consisting of a one-story structure, about 150 x 360 feet, to be used in part for drier department and other operating service, storage and distribution. Cost reported over $75,000, with equipment. Ganteaume & McMullen, 99 Chauncy street, Boston, Mass., are consulting engineers.

Hutchinson, Kan.—The Central Fibre Products Company, Inc., manufacturer of news board, straw board and other paper board products, has awarded general contract to M. C. Foy & Son, 416 East 13th street, Hutchinson, for alterations and improvements in mill. No estimate of cost announced. Work is scheduled to begin at once.

Detroit, Mich.—The Motor City Tube Corporation, 13911 Myers road, manufacturer of paper tubing, cartons and kindred products, is considering the rebuilding of plant destroyed recently by fire. Loss estimated over $100,000, with equipment. Structure was two-story, working on a capacity schedule for the manufacture of spark plug boxes for defense account. William H. Taylor is president.

Brokaw, Wis.—The Wausau Paper Mills Company, manufacturer of bond, ledger and other paper stocks, has work under way on rebuilding and repairing of mill damaged by flood a few weeks ago, including piling, brickwork and other construction. General contract is being carried out by C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis.; contract for piling has been sublet to Wheeler-Arnold Company, Wittenberg, Wis.

Los Angeles, Cal. — The Pioneer-Flintkote Company, 55th and Alameda streets, Vernon, Los Angeles, manufacturer of roofing and buliding papers, is continuing its expansion program at mill, recently referred to in these columns, and plans have been filed for two new one-story structures for extensions in production department. One building will be 42 x 215 feet, and is estimated to cost over $75,000, with equipment; the other unit, to be used as a beater room, is reported to cost close to $21,000, with machinery. Erection contract for both buildings has been awarded to the Austin Company, 777 East Washington boulevard, Los Angeles, and work will be placed under way at once. Company is an interest of Flintkote Company, 30 Rockefeller plaza, New York, N. Y.

Garwood, N. J.—The Asbestos Corporation of America, Inc., 90 West street, New York, N. Y., manufacturer of asbestos fiber products, with main plant at 67 North Ninth street, Brooklyn, N. Y., has concluded arrangements for purchase of plant of the Anchor Post Fence Company at North and Lincoln avenue, Garwood. Property consists of a tract of two acres of land, improved with a group of one-story buildings, totaling about 28,000 square feet of floor space, and will be improved and equipped for new plant. Machinery and facilities will be installed for large production.

Chicago, Ill.—The Central Waxed Paper Company, 5659 West Taylor street, manufacturer of waxed and other processed paper stocks, has begun work on alterations and improvements in plant, for which general contract has been awarded to Freevol, Smedberg & Company, 5950 West Erie street. No estimate of cost announced. Program includes both exterior and interior modernization and improvements in two-story structure. Battey & Childs, 231 South LaSalle street, Chicago, are architects.

Los Angeles, Cal. — The Eastman Tag and Label Company, 743 East 60th street, manufacturer of paper specialties, has approved plans for expansion in converting plant, consisting of a one-story structure, about 50 x 85 feet, to be located at 720 East Fifty-ninth street. It will be used primarily for storage and distribution. No estimate of cost announced. Erection contract has been let to Elwood G. Houseman, 4242 Agnes avenue, North Hollywood, and work will be placed under way at once. Arthur R. Hutchason, Architects' Building, Los Angeles, is architect.

Chicoutimi, Que.—The Quebec Pulp and Paper Corporation is said to be arranging for remodelling and improving local mill, idle for some time past, with the conversion of the property for munition manufacture for the Canadian Government. Work is reported to cost over $80,000.

Hull, Que.—The E. B. Eddy Company, Ltd., manufacturer of newsprint, book and wrapping papers, and other paper stocks, has awarded general contract to the Foundation Company of Canada, Ltd., k538 West Sherbrooke street, Montreal, Que., for extensions and improvements in mill, including remodelling certain present structures. Cost reported close to $200,000, with equipment. Work is scheduled to be placed under way at once.

Newfane, N. Y.—The Lockport Felt Company, specializing in the production of paper makers' felts, is operating on a capacity schedule, with all departments averaging from 60 to 70 hours per week. About 230 persons are now employed, as against a working force of about 180 persons a few months ago. It is expected to hold to present production schedule for an indefinite period.

Todmorden, Ont.—The Don Valley Paper Company, Don Mills road, Todmorden, near Toronto, manufacturer of bristol, folder and other kindred paper stocks, blotting papers, etc., has approved plans for new one-story addition to mill, for expansion in production division. It is reported to cost about $50,000, including equipment. General erection contract has been let to Baines & David, Ltd., 54 Commissioners street, Toronto, and work will be placed under way at once.

Montreal, Que.—Shipping Containers, Ltd., 155 Beaubien street, manufacturer of corrugated boxes and containers, is planning erection of one-story addition to plant, for increased capacity. Cost is re-

ported close to $45,000, including equipment. Work is scheduled to begin soon.

Powell River, B. C.—The Powell River Company, Inc., Standard Bank Building, Vancouver, B. C., manufacturer of newsprint, has work in progress on new one-story addition to mill at Powell River, previously referred to in these columns, and will push structure to early completion. It will be used for expansion in sulphite pulp division and is reported to cost close to $200,000, including equipment. Smith Brothers & Wilson, Ltd., 1267 Richards street, Vancouver, have the general erection contract.

Ohio TAPPI Discusses Asphalt

The Ohio Section of the Technical Association of the Pulp and Paper Industry met at the Hotel Manchester, Middletown, Ohio, on October 23, 1941. Following a dinner served to 53, Chairman Harry C. Fisher presided at a short business meeting.

Howard H. Harrison, vice-president of the Crystal Tissue Company and a member of the National Executive Committee presented a very interesting report on the nontechnical activities at the Ann Arbor meeting. This was followed by two vocal selections by Samuel Hall, one of the singers in the Cincinnati May Festival.

This was followed by a talk by Harold W. Greider, director of research of the Philip Carey Manufacturing Company. Mr. Greider talked on the asphalt and asbestos products made by his organization and stressed particularly the problems of manufacture and the meeting of use requirements.

To conclude the meeting Mr. Walter E. Sooy, vice-president of the Gardner-Richardson Company, showed some colored films which he took on a trip to the West Coast and through the Canadian Rockies.

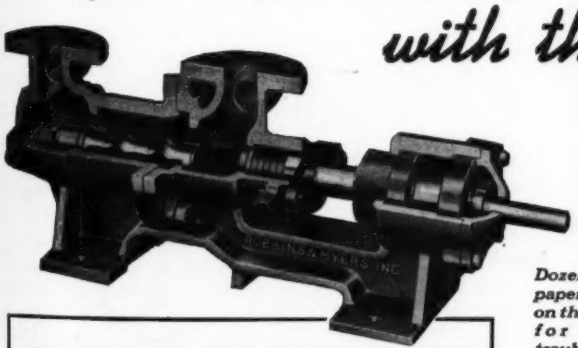
Those present included: Henry J. Allison, Jr., Duncan S. Brown, Howard Buechler, John E. Burdsall, H. E. Callahan, Harry Cunningham, Thage Dahlgren, G. A. Fasold, Harry C. Fisher, L. J. Gaede, W. W. Galloway, O. P. Gephart, Edward Geran, D. J. Goodman, H. W. Greider, Harry Hadley, George W. Hall, Samuel Hall, J. A. Hamm, Jr., Howard H. Harrison, Otto W. Hein, S. Hluchan, E. B. Janvim, Howard L. Johnson, Glenn C. Kimble, H. Latham, Harold C. Leighton, W. Liebrook, Edward Lum, W. Macklem, Henri Marc, J. Markley, F. S. McGee, A. J. McMahen, Charles Merriman, Robert L. Miller, Eldred A. Mode, Paul A. Morrison, H. P. Petzold, William Reigers, C. W. Richards, M. P. Riehm, Eugene Rodabaugh, Andrew Ryfun, A. J. Smith, Jack Smith, Jr., M. F. Smith, Walter E. Sooy, Willard S. Upson, Henry Waffenschmidt, Myron Wittmer, S. W. Yates and D. W. Yost.

Vote for All-Union Agreement

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 27, 1941—In a referendum conducted last week, employees of the Kimberly-Clark Corporation's mill at Kimberly, Wis., voted for an all-union agreement between the corporation and the Papermill Workers' Union. Out of 1,191 votes cast, 1,046 favored the agreement while 142 voted against it.

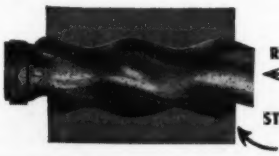
Stop those "PUMPING-TROUBLE" delays with the R & M MOYNO



Dozens of leading paper mills depend on the R & M Moyno for efficient, trouble-free pumping. Actual service records everywhere show cost savings and improved product quality.

ONLY TWO PUMPING PARTS

Here's the patented secret of the efficient, trouble-free performance of the R & M Moyno Pump. A helical rotor revolves within a helical-threaded stator, providing pumping action like that of a piston moving through a cylinder of infinite length. Construction of the Moyno Pump is so simple that it can be dismantled and reassembled in 30 minutes.



With today's demands for all-out production of paper, you can't afford "pumping-trouble" delays in your mill.

Here's the pump that can "take it"—the new R & M Moyno. It's radically different, yet simple in principle . . . handles size, coating or stock without foaming, turbulence or cavitation . . . helps speed your production and improve your product quality.

Keep your mill free from "pumping-trouble" delays, save time and costly maintenance with the R & M Moyno. Write today for Folder No. 1777.

ROBBINS & MYERS • Inc.

MOYNO PUMP DIVISION SPRINGFIELD, OHIO

HOISTS • CRANES • MOTORS • FANS • FOUNDED 1878

UNITANE-O Pure Titanium DIOXIDE

WE'RE in the ARMY, NOW

. . . and in the Navy, Too!

Yes, we've been "caught in the draft", too . . . and like many other companies in the Paper Industry, are confronted daily with innumerable, perplexing and constantly changing problems resulting from the DEFENSE PROGRAM.

Most difficult of all is the problem of satisfactorily meeting the needs of those who are depending upon us for materials, and this we are striving to the utmost to do in a fair and intelligent manner.

During this trying period there has been evident throughout the industry, a fine spirit of cooperation which has thus far helped us all. Our problems, we believe, will continue and, doubtless, will become more acute, imposing an even greater need for tolerance.

UNITED

UNITED COLOR AND PIGMENT CO.

DIVISION OF INTERCHEMICAL CORPORATION

NEWARK, NEW JERSEY

SALES OFFICES IN PRINCIPAL CITIES

Paper Demand Largest in Years

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 27, 1941—Judging from appearances in Central Indiana, the Government has become one of the largest competitors of paper consumers in the market at the present time. Paper demand in practically all items is the largest it has been for years, but the domestic consumer is finding it increasingly difficult to secure deliveries, largely because of government demands. Domestic consumers for the most part have thrown away their fears concerning prices and other factors and are concentrating on buying for future use while deliveries yet are possible. And in spite of the fact that it now is a seller's market, paper prices are being held well in line. Some price increases have been made, of course, but it is doubtful if price increases here in the paper market are on a par with other commodities. Local manufacturers and jobbers say most of the increases have been due, from a purely local standpoint, to increasing costs of doing business, such as taxes, wage scales and other purely local items. Such other increases as have been made are due entirely to increased costs at the mills.

There is every likelihood that building will be curtailed to some extent, but thus far this has had little effect on demand for roofing and other building papers. Dealers are buying what they can in an effort to build up some reserves.

Newsprint demand continued heavy here last week and will become heavier as the holiday season approaches. Tissues continued strong last week with prices fractionally higher. Demand for all grades of fine paper was heavy with prices firm to strong. Mill deliveries of fine paper are not as punctual as the trade would like. Kraft also was in good demand.

Rag demand was good with prices strong and it is expected that advances will be made in some grades. Rags for roofing were particularly desired. Paper stock prices showed no change, due to OPA schedules, but mill demand was heavy. This applied to the entire paper stock market.

Dr. Karlson Speaks at Hudson Falls

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., October 25—Dr. Karl R. Karlson, assistant to the president of the Union Bag and Paper Company, was the principal speaker at a gathering of the employees here and expressed the belief that the paper industry will soon regain its importance in the Hudson Valley. The employees of the concern recently formed a local branch of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers and Mr. Karlson, formerly resident manager, spoke principally on the recent wage agreement. The wage scales for girls have been placed in three groups which are 43, 46 and 48 cents an hour. The machine tenders, grouped into classes, will receive increases ranging from six to eleven cents an hour. George Brooks, auditor of the International Brotherhood of Papermakers, expressed in behalf of the workers the gratefulness and thanks for the splendid cooperation they received from the management throughout the conference negotiations. Others who spoke in behalf of the management were Fay Marrs, factory manager; A. B. Haslacher, of the research division, and Joseph R. MacLaren, paymaster of the local factory.

Foresters to Meet

The Society of American Foresters, the national organization of technically trained foresters, will hold its 41st annual meeting in Jacksonville, Fla., December 18, 19, and 20, 1941. Headquarters will be at the George Washington Hotel. Dr. Clarence F. Korstian, president of the Society and dean of the School of Forestry, Duke University, Durham, N. C., has announced that the program will comprise four half-day sessions devoted to professional forestry, and an all-day field trip.

The opening session, Thursday morning, December 18, will have as its theme "The Forestry Situation in the South." Scheduled speakers include D. E. Lauderburn, Soil Conservation Service, Spartanburg, S. C.; Fred J. Shulley, Extension forester of Arkansas, Little Rock, Ark.; J. E. McCaffrey, International Paper Co., Mobile, Ala.; Paul M. Garrison, Gaylord Container Corp., Bogalusa, La.; Joseph C. Kircher, U. S. Forest Service, Atlanta, Ga.; J. Brooks Toler, state forester of Alabama, Montgomery, Ala.; and William M. Oettmeier, Superior Pine Products Co., Fargo, Ga.

The Thursday afternoon session, December 18, will be devoted to Society affairs. This session will be open to Society members only. Nonmembers who are interested or working in the field of conservation are cordially invited to attend all other sessions, including the banquet Thursday evening.

On Friday, December 19, a field trip will be made by the foresters to Olustee and vicinity to inspect woods and naval stores operations, the state forest nursery, and the Osceola National Forest. Two papers will be presented by R. M. Conarro, U. S. Forest Service, Atlanta, Ga., and Donald R. Brewster, consulting forester of Savannah, Ga.

Saturday morning's session, December 20, will have as its theme "The Future of Southern Forestry." Speakers on the program will be I. F. Eldredge, Southern Forest Experiment Station, New Orleans, La.; Willis M. Baker, Tennessee Valley Authority, Norris, Tenn.; C. W. Strauss, U. S. Forest Service, Atlanta, Ga.; T. R. Truax, Forest Products Laboratory, Madison, Wis.; Cecil Johnson, Federal Crop Insurance Corp., Washington, D. C.; R. B. Thompson, Duke School of Forestry, Durham, N. C.; E. L. Demmon, Southern Forest Experiment Station, New Orleans, La.; and Edwin A. Ziegler, School of Forestry, University of Florida, Gainesville, Fla.

The final session on Saturday afternoon will be centered on inter-American forestry. The speakers will be Carl Olsen, Office of the Coordinator of Inter-American Affairs, Washington, D. C.; Clarence L. Forsling, U. S. Forest Service, Washington, D. C.; Manuel A. Gonzales-Vale, Caracas, Venezuela; Samuel J. Record, School of Forestry, Yale University, New Haven, Conn.; and Arthur Bevan, Tropical Forest Experiment Station, Rio Piedras, Puerto Rico.

Not one but SIX

WARREN DIGESTER LIQUOR CIRCULATING PUMPS

are operating successfully in a prominent Eastern Mill. This is only *one* of *several* satisfactory Warren installations at other nationally known Pulp Mills in this admittedly difficult service. High temperatures, high pressures, and highly corrosive acid are *all* taken in the usual business-like stride of Warren Pumps.

The reason? Our engineers are familiar with the application in question . . . its problems and objectives . . . and build into the pumps such design and rugged construction as is necessary to do the job . . . and do it well!

"A Warren Recommendation is never a Compromise."

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Warren Steam Pump Company, Inc., Warren, Massachusetts

Trading in Waste Paper Quiet

BOSTON, Mass., October 27, 1941—Trading in waste paper is quiet, it is stated in the trade here. Dealers are not selling because they do not like the ceiling prices, according to reports.

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.
Henry J. Berger
EDITOR

Vol. 113 October 30, 1941 No. 18

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

TAXING RESERVES

Reasonable reserves of the undistributed earnings of corporations to be used for additions and betterments have always been considered an essential part of the policy of good management. It is simply the practice of setting aside certain funds to meet unforeseen or possible to cover higher anticipated expenditures. Reserves may be created to serve many useful purposes and when special reserves are set up to meet any such contingency the objective is explained in the concern's reports. The direct levy in the operation of the present tax law is considered by some tax authorities to be an injustice, in that it compels corporations to distribute profits which conservative business policy would retain to keep their business enterprises sound and strong.

In commenting on this phase of taxation Godfrey N. Nelson, lawyer and tax expert, in an article in *The New York Times,* states in part that, "At a time like the present, when taxes are taking a larger proportion of earnings than at any time in the history of the country, and when the products of many industries are being diverted voluntarily and otherwise into defense channels, the best interests of business as well as the government seem to dictate the wisdom of suspending tax laws which place restraints or penalties upon the retention of earnings. It is conceded, of course, that the government's present need for large revenues is unprecedented. On the other hand, the great benefits to be derived from placing business enterprise in a strong position not only to do a better job of national defense but to meet and cope with post-defense problems when they arise, will probably more than outweigh the immediate benefits of revenues from this source."

Briefly discussing war earnings and losses Mr. Nelson explains that, "War profits should be subjected to heavy taxes. But war profits are not actually determined until some time after the termination of a war. Many of the losses consequent upon a war are not recognizable while the war is going on and ultimate losses could not be foreseen in advance of the time when the transition from a war basis to a peace basis actually takes place. World War I affords ample proof of this statement. Some manufacturers not only lost from operations but they temporarily lost their regular markets also. Perhaps taxes are already so high that few corporations will have to concern themselves with setting up reserves for the future. The excess profits tax alone carries rates of 35% to 60% upon adjusted income, after credits. After deducting the excess profits tax from the net income, if the balance is not more than $25,000, the first $5,000 is taxable at 15%; the next $5,000 is taxable at 15%; and the remainder at 19%, with an adjustment if the income is slightly more than $25,000. If the next income, after deducting the excess profits tax, is more than $25,000, the excess is subject to a normal tax of 24%. The same net income, plus interest from Government obligations, is subject to a surtax of 6% on the first $25,000 and 7% on the excess over $25,000."

Discussing other conditional levies, Mr. Nelson says in part: "In addition to the excess profits tax, the normal tax and the surtaxes, business corporations pay a capital stock tax of $1.25 per $1,000 of declared value. And if a corporation's income exceeds 10% of such declared value, the excess over 10% and up to 15% of such value is subject to a 'declared value excess profits tax' of 6.6%; and if the income exceeds 15% of the 'declared value excess profits tax' the overage is taxable at 13.2%. The tax with which this article deals in particular, however, is an additional surtax on so-called improperly surplus, the rates of which are 27½% on the 'undistributed Section 102 net income' not in excess of $100,000, and 38½% of the excess of $100,000. One of the peculiarities of this tax law is that a mere charge by the taxing authority of its violation imposes upon the corporation the obligation to prove by a preponderance of evidence the absence of a purpose to accumulate earnings beyond the reasonable needs of the business. Moreover, this surtax is being asserted where the corporation is engaged in 'all out' defense production."

In directing attention to reports of revenue agents, Mr. Nelson goes on to say that, "Under this surtax law the Treasury has required revenue agents to report to Washington cases wherein corporations have invested earnings in securities or other property 'unrelated to their normal business activities', as in the case of an investment fund, or where they have not distributed at least 70% of earnings as taxable dividends (T.D.4914). Thus a presumption is created that a corporation is guilty of accumulating an un-

reasonable surplus if it has invested in outside securities or if it has retained over 70% of earnings. Such reports are also required of revenue agents in respect of corporations which have distributed in excess of 70% of earnings but where the agent regards the distribution as inadequate."

Continuing, Mr. Nelson states that, "In spite of the existence of a real need for withholding earnings from distribution, as in the case of insufficient working capital and by reasons of objections on the part of bankers, who insist upon repayment of loans in advance of making dividend payments, the Section 102 tax on retained earnings is a threat to conservative corporate management which should be removed, at least for the duration of the national defense emergency. The continued threat of enforcing this inequitable tax measure works injustice on both corporations and their shareholders."

To Make Yeast from Paper Mill Waste

The Orsyn Corporation has been organized under Delaware laws to manufacture yeast from waste sulphite pulp liquor under a new process, and plans early construction of a number of plants for this output, to be situated at strategically located sulphite pulp mills in different parts of the country. These plants will operate under what is known as the "Heijkenskjoid" process for utilizing wood sugars extracted from sulphite liquors, for which American rights have been secured. From the same foreign source, other processes have been obtained for the manufacture of plastics, glue and fertilizer from paper mill waste, and byproduct mills for this purpose will be a later development. Two yeast plants of this type have been constructed and placed in operation in Canada, at the mills of the Ontario Paper Company, Ltd., Thorold, Ont., and the Mersey Paper Company, Ltd., Brooklyn, near Liverpool, Nova Scotia, respectively. These were built under the direction of Eric Eweson, an official of the new American company, who will engage in a similar capacity in connection with plants to be erected in the United States. Others connected with the new company include George Weymouth, now identified with the Office of Production Management, Washington, D. C.; Roy Martin, Walter S. Carpenter III, and John P. Bowditch. Laird & Co., Delaware Trust Building, Wilmington, securities, are interested in the new company.

Frank Liebert Heads Bag Division

Frank Liebert has been named Product Manager of the Bag and Envelope Division of the Reynolds Metals Company, according to an announcement by J. Louis Reynolds, vice president and general sales manager. Mr. Liebert succeeds V. W. Moody, Sr., who has been transferred to Louisville as manager of the company's new powder container plant.

Mr. Liebert began with Reynolds company in 1936 as a mail clerk, and later was transferred to the Harrison, N. J., plant where he engaged in efficiency control and production analysis work. In 1940 he moved to Richmond, Virginia, to take a position as assistant to Mr. Moody.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks, 1941		Corresponding Weeks, 1940	
September 13	104.2	September 14	85.2
September 20	103.8	September 21	85.0
September 27	105.2	September 28	86.7
October 4	106.7	October 5	85.4
October 11	103.1	October 12	86.2
October 18.....(Prelim.)	*104.9*	October 19	84.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1940	89.1	84.7	82.3	84.3	90.0	92.1	85.3
1941	85.6	89.7	92.2	96.4	98.9	99.5	94.8

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1940	85.1	81.5	85.5	84.9	80.9	85.6
1941	101.8	*99.7*	...	...	...	...

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941
Year to Date..	69.2	78.9	85.1	70.4	80.9	86.1	*95.7*
Year Average..	69.9	80.4	79.8	71.5	83.4	85.6	...

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	62	67	67	70	69	70	69	75	78	82	80	74	72
1937	80	86	86	88	85	77	66	74	69	65	55	45	73
1938	54	60	61	57	58	56	57	66	66	70	65	59	61
1939	60	67	71	69	64	67	63	72	74	84	81	71	70
1940	71	70	69	70	76	79	72	74	72	79	77	71	73
1941	75	81	82	83	84	88	86	94	*94*	..	..	..	..

Week ending Sept. 13, 1941—98
Week ending Sept. 20, 1941—99
Week ending Sept. 27, 1941—98
Week ending Oct. 4, 1941—100
Week ending Oct. 11, 1941— 99
Week ending Oct. 18, 1941— *98*

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.

Issues New Paper Export Ruling

[FROM OUR REGULAR CORRESPONDENT]

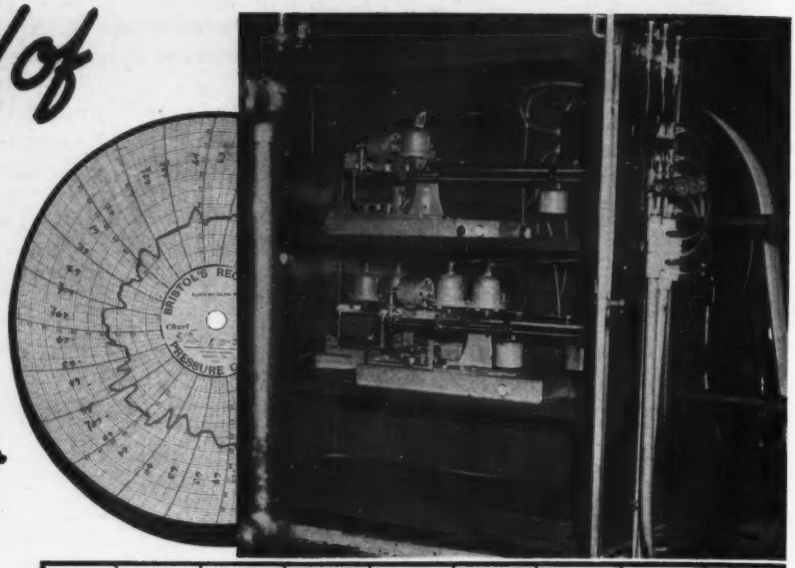
WASHINGTON, D. C., October 29, 1941—Because of the acute shortage of paper, the Economic Defense Board today issued Export Control Schedule No. 23, placing under control a long list of forms, conversions, and derivatives of paper. Previously the Office of Export Control, now a Division of the Economic Defense Board, placed under the licensing system all wood pulp and chemicals used in the manufacture of paper, in the hope that such control would reduce the exportation of paper.

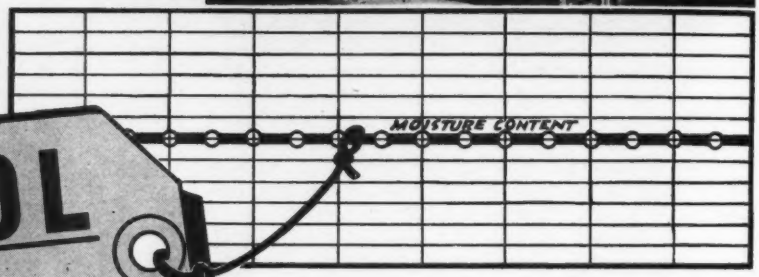
Schedule No. 23 is effective November 11, 1941, instead of October 24, 1941, as previously announced.

General licenses will be authorized, effective November 11, 1941, to the following countries: Canada, Great Britain and Northern Ireland, Newfoundland, Iceland, and the Philippine Islands.

On October 1, under Schedule No. 21, waste paper in its forms, conversions, and derivatives was placed under export control. In addition to these items previously determined, the new schedule includes, in the forms, conversions, and derivatives of paper, the following: printing paper, cover paper, greaseproof and waterproof paper, wrapping paper (except kraft), kraft wrapping paper, surface-coated paper, tissue and crepe paper, toilet paper, paper towels and napkins, kraft container board, other box board, bristols and bristol board, other paper board, sheathing and building paper, fiber insulating board, wall board of paper or pulp, blotting paper, filing folders and other office forms, papeteries, writing paper, paper hangings, paper bags, boxes, and cartons, envelopes, cash-register and adding-machine paper, and other paper and paper products.

This kind of pressure regulation pays an important dividend:





CONTROL of sheet moisture content

THE ARMSTRONG-STAMM MOISTURE CONTROL SYSTEM

IT PAYS to have a good pressure regulator on any paper machine, but it pays even better to have ARMSTRONG-STAMM MOISTURE CONTROL! This equipment not only controls the steam pressure, but it continuously adjusts the pressure to the exact point needed to hold uniform moisture content in the sheet.

Armstrong-Stamm Moisture Control equipment is built specially and solely for paper machines. Units are designed for fully automatic operation but are also instantly responsive to manual operation at the will of the machine operator. And while units are highly sensitive to the condition of the sheet, the equipment itself is of rugged construction and is easily understood and manipulated by machine operators. All of the equipment has been thoroughly proven in typical mills and is sold on a basis of complete satisfaction guaranteed. We will be glad to send you detailed information.

Armstrong also offers complete engineering service and equipment for modernizing machine drainage systems and for applying graduated temperature control to machine dryers. Ask for literature. Write to ARMSTRONG MACHINE WORKS, 818 Hoffman St., Three Rivers, Mich.

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Strategic Metals*

By Albert E. White[1]

World Wars

When a list of strategic and essential materials for defense was prepared by the War Department a few years after the end of the last World War, but few persons took the matter seriously. Many believed there would not be another World War, or at least another World War for many generations to come. Others felt that, even if there was another World War, there would be no greater economic upset than we experienced in the last World War. Those holding this view possibly looked upon the major strategic metals as manganese, nickel, and tin, with the possible inclusion of tungsten and copper.

Then there was the idealistic group that saw that wars created little, if any, ultimate benefit to any nation whether it was directly or indirectly engaged; that, from an economic standpoint, all wars were unsound; that the most lasting benefits would accrue to all nations through a definitely planned disarmament program. Though this viewpoint is sound, it can be carried into successful fruition only with mutual trust and honesty of purpose among all nations. The Disarmament Program of 1923 was carried out by our leaders in that spirit, but certain other nations, though agreeing to the strict interpretation of their agreements, failed to live up to the broad, underlying principles which were the actuating force of the agreement. Many of the people in such nations were living under less favorable conditions than our own. They were led by their leaders to believe that the only way they could acquire improved standards of living for themselves was through force. Many were led, too, by leaders who thought mainly in terms of personal aggrandizement, who felt that any means to an end, no matter how ruthless or brutal, was justified. Leaders of this type have existed since the beginning of time and can only be held in check by other nations by force, the only power they recognize. We as a nation, therefore, cannot afford to disarm to a point at which we cannot properly defend our country, or to a point in which agreements which have been entered into in deliberative council chambers cannot be sustained by force, if such is necessary. Had we and other nations followed this course, the present upset in the world's economic life would never have occurred.

Probably no industry felt it would be as little affected by a World War as the paper industry. It could visualize pronounced difficulties in getting pulp; it could recognize problems in getting adequate oil and coal supplies; some trouble in getting the necessary chemicals, but few, if any, foresaw any major difficulties in the metal field.

At first thought, many would not list paper as an essential industry. They might realize the need for a moderate curtailment in paper output. They might visualize a reduction in the size of our newspapers, magazines, and books, but as far as a critical shortage of paper was concerned, that, to them, would be out of the question. Yet there is such a possibility. Few realize that today the largest single purchaser of book paper is the United States government. It is now purchasing over one third of the country's output. Add to this the amount of paper required for cartons and containers, and one can realize how important the paper industry is to national defense.

Without the use of metals, none of this paper or container stock could be produced. The major metals used are cast iron, steel, and copper. These metals, except steel, have not yet reached an acute stage from the standpoint of procurement, though they are fast getting into that category. Other metals, also, though the tonnage may not be large, are either directly or indirectly essential to a continued operation of the mills. A brief statement is submitted, therefore, with regard to the general availability of the metals in the entire metal field. No mention, however, will be made of aluminum and magnesium, though these are both strategic metals, for the reason that these two metals are used to only a limited degree by the paper industry. It is true, though, that there exists a greater shortage for these two metals than for all others, possibly excluding nickel.

Metals Production

Iron and steel are of the first order. Our analysis will be confined to steel, for what is said of steel is equally true of iron, though the tonnage figures for iron are less by at least one half than those for steel. From 1936 to 1939 the average annual production of steel was about 45 million tons. Our mills, during this period, were running at low ebb for they had a capacity of nearly twice that amount. The civilian and military needs for steel in 1941 call for the entire steelmaking capacity of the country and steps are now being taken to increase this capacity by 10,000,000 tons. One may wonder why it is necessary to so drastically increase production for this war when the present steelmaking capacity would have been rela-

TAPPI Section, Page 227

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Ann Arbor, Mich., Sept. 16-19, 1941.

[1] Director of Engineering Research, University of Michigan, Ann Arbor, Mich.

tively adequate for the requirements of the last war. The answer is simple. This is a war of mechanized units. It is a war based on rapidity of action, mobility, with adequate protection for the men carrying on the fighting. It is no longer a war of foot-marching soldiers equipped with rifles. Troops of this type are now mainly valuable when brought into action by trucks and lorries to clean up lines already broken by tanks and heavy artillery. Tanks, trucks, lorries, heavy artillery, and ammunition for the same require steel and other metals in enormous quantities. It is also a war of the air for which much refined iron and steel, both plain carbon and alloyed, is required. Then there are the needs of a two-ocean navy, a shipbuilding program calling for 6 million tons of steel by 1943, steel for our new naval bases extending from Iceland to Trinidad to Alaska, steel for the construction of our new defense plants and equipment for the same, freight cars, power stations, pipe lines, farm machinery, current civilian needs, and vast quantities for the lend-lease program. With total listed needs of nearly 120,000,000 tons for 1942, we will probably be able to produce only about 90,000,000 tons. This, in itself, is a big jump from the 45,000,000 tons yearly average between 1935 and 1939.

The tonnage figures for tungsten, so important an element in mass production cutting tools, was around 4,500 tons annually for the 1936-1939 period. The supply available for 1941 is a little over 15,000 tons and for 1942 a little under 12,000. This drop is due to the inability to replenish the existing stock piles from foreign sources because of shipping difficulties. Added sources of tungsten, however, are being opened up in this country. The requirements for tungsten are about 15,000 tons for 1941 and 20,000 tons for 1942. The situation is not unduly acute, for little tungsten is required for direct military uses.

The condition with respect to copper, zinc, lead, tin, and brass is given in the following table. It will be observed, in the case of these metals, as was true with regard to the other metals discussed, that no balance between supply and expected total needs exists. This very lack of balance is the reason for the establishment of rationing by priorities so that it will be possible to fill, at the very least, the most urgent needs.

The shortages in tungsten, chromium, lead, tin, and manganese are mainly due to the lack of shipping facilities, whereas the shortages in steel, copper, zinc, brass, and nickel are the result of shortages in production facilities.

		1941				1942		
			Needs				Needs	
Metal	Av. Annual 1935-1939 Consumption	Supply	Military	Civilian	Total	Supply	Military	Civilian	Total
Copper [1]	750,000	1,400,000	800,000	1,200,000	2,000,000	1,500,000	1,000,000	1,500,000	2,500,000
Zinc [1]	550,000	950,000	300,000	900,000	1,200,000	1,000,000	350,000	1,250,000	1,400,000
Lead [1]	650,000	950,000	20,000	880,000	900,000	.....	40,000	9,060,000	7,000,000
Tin [2]	70,000	160,000	.....	.....	130,000	.....	.....	.....	150,000
Brass [1]	500,000	600,000	500,000	.....	.....	1,050,000	750,000	.....	.....

[1] Short Tons. [2] Long Tons.

Manganese is an essential element in steelmaking. Over 500,000 tons was used annually in the 1935-1939 period. About 1,500,000 tons may be required for 1942. Though much has been said about our shortage of this element, and we are short and will continue to be, the shortage is not pressingly acute. Our reserve stock of this metal is quite large and our foreign sources of supply are still open, though hampered by lack of shipping facilities. Also, we have some sources of good ore in this country and ways are being worked out for the smelting of low-grade manganiferous ore.

Nickel, which is so important an element in the production of equipment in pulp and paper mills which use acids and alkalies, falls far short of meeting the demand. About 80,000,000 pounds was used annually in the 1935-1939 period. The supply for 1941 will be about 180,000,000 pounds, with about the same available for 1942. The military needs alone are expected to run into this amount for 1941 and 1942. The requirements for civilian use just won't be met. It may be expected, therefore, that paper mills will have difficulty in getting priorities for nickel and nickel-bearing steels, especially stainless steel, which carries 8% nickel together with 18% chromium.

Tonnage

The average annual consumption of chromite, from which chromium is obtained, in the 1935-1939 period was around 350,000 tons. The available supply is nearly 600,000 tons annually. The needs for 1941 are given as around 700,000 tons. The needs are mainly of a civilian rather than a strictly military character. The situation with regard to chromium, therefore, is not critical.

Need For Judicious Allocation

The above analysis shows there will be, and is, a very definite shortage of metals. It points a need for judicious allocation, consumption, and plant extension for these materials. The Government is directing its energies along these lines.

Yet, in such a program the paper industry need have no fear for its continued operation for, through substitution and a reasonable rationing of materials through the agency of the Priorities Board, it will, without any question, be enabled to carry forward its activities during this period of National Emergency.

Sleeve Bearings

A manual entitled, "Handbook of Sleeve Bearings," by Albert Willi, has just been published by the Federal-Mogul Corporation, Detroit, Mich. As the subtitle states, this 51-page, cloth bound book, is a practical guide for the engineer, designer and draftsman, in the selection, design and application of sleeve bearings.

The author is a member of the American Society of Mechanical Engineers, and chief engineer of the Federal Mogul Corporation. The text is based on successful practice and the preface states that much of the information has been taken from previous papers by the author published in leading engineering periodicals.

A Technique for the Electron Microscopic Examination of Encapsulated Bacteria

A study of encapsulated bacteria is being carried on at The Institute of Paper Chemistry as part of an investigation of the causes for and the control of slime in paper mills. The development of several forms of those bacteria is being followed by both light and electron microscopic observations during the investigation of the conditions favoring their growth.

The bacterial cells were seen, but neither the capsules nor the outlines of the capsules were visible when the specimens were prepared for the electron microscope by the ordinary technique of placing a drop of the bacterial suspension on the collodion film-covered specimen screen and drying. Either the dried capsular material was so transparent to the electron beam as to be indistinguishable from the background of collodion film or the capsule shrank up to the cell during the process of drying and formed a spurious cell membrane.

This failure to observe the capsules in the electron microscope is entirely analogous to the difficulty experienced in light microscopy when attempts are made to observe capsular material without the use of special and difficult staining procedures or without Gins India ink smear technique. In this latter method a drop of India ink and a drop of the bacterial suspension are placed on a slide and mixed with a needle. When the combined drops are thoroughly mixed, a second slide is placed on the first and drawn over it to spread or smear the drop of liquid. When the slides are drawn apart each retain a smear of the liquid. The smears are fixed by passing the slides through a gas flame. Following the use of a stain, an examination of the slides shows the stained cells lying in the transparent areas of the capsules: the entire organism is surrounded by a matrix of the carbon particles which formed the pigment of the India ink.

In view of our failure to prepare satisfactory specimens for the electron microscope by the usual technique, the use of a method similar to Gins was clearly indicated.

The following procedure was found convenient and satisfactory:

India ink is diluted with about an equal volume of distilled water and a drop of the diluted ink placed on a slide and mixed with a drop of the bacterial suspension. In our case it is found helpful to use a somewhat more concentrated suspension of the organisms than is desirable for specimens to be viewed in the light microscope. A second slide is placed on the first and smears obtained as in Gins method. The smears are allowed to dry without fixing in a flame. Without staining the smear, a few drops of a two per cent solution of collodion in amyl acetate are placed on the slide outside of the area covered by the smear and the slide is tilted and turned to allow the collodion solution to run over the smear. The excess collodion is removed by a blotter on which the end or corner of the slide rests. The slide is held in this position until the solvent has evaporated to leave a thin film of dry collodion over the smear. Immediately thereafter, the slide is gently lowered, film side up and with its length forming a 45 degree angle with the water surface, into a dish of distilled water. The collodion film separates from the glass and, carrying the smear with it, floats on the surface of the water. The specimen screens are then placed on the film and handled in the usual fashion for preparing specimens to be examined in the electron microscope.

The specimens prepared for the electron microscope in this way clearly show the outline of the capsules surrounding the bacterial cells. As in the case of specimens seen in the light microscope, several cells are occasionally seen to be enclosed in the same capsular mass and empty capsules are also found. Such abnormalities are probably due to mechanical mistreatment during the preparation of the smears.

1941 Chemical Formulary

Volume V of the Chemical Formulary, a 670-page book edited by H. Bennett, has just been published by the Chemical Publishing Company. Many are familiar with previous volumes of this book which is a collection of recipes and formulas for making thousands of products in many fields of industry. Although it is not a technical book in the real sense it is a handy book to have available to meet the many emergencies arising in the mill and laboratory.

Among the subjects covered are the following: adhesives for paper, emulsions and dispersions, inks, lubricants, oils, fats, materials of construction, metals treatment, paints and lacquers, photography, polishes, soaps and cleaners, textiles, water softeners, antifoams. Included is an appendix showing where to buy materials.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York, N. Y., at $6.00 per copy.

TAPPI Notes

The Harry R. Lewis Company, Warren, Pa., manufacturers of waxes, has become a sustaining member of the Technical Association.

The Pacific Section will meet at Camas, Washington on November 4th.

Correction: On sheet 4 of TAPPI Standard T 205 m-40 the following equation appears:

$$\text{Standard Drainage Time} = \frac{d\,(60 - K)}{r - K} + \frac{1}{Vt} - 1 \quad (d - 4)$$

In describing the use of this formula it is stated that T is the average (moisture-free) basis weight in grams per sq. in. of the resulting sheets. [The Symbol T should be changed to r].

Bill Zwecker at Filer Fibre Co.

William R. Zwecker, formerly with the North American Pulp and Paper Company, Cheboygan, Mich., is now assistant to the president and general manager in charge of research and special development for the Filer Fibre Company, Filer City, Mich.

United States Patents on Papermaking

Third Quarter, 1941

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The following list of patents has been compiled from the current numbers of the Official Gazette of the United States Patent Office. Because as a rule, only one claim is published in the Gazette, it is not claimed that the list is complete; it is also possible that some patents have been included which do not apply to papermaking.

Copies of any of the following patents may be obtained from the U. S. Patent Office, Washington, D. C., by sending ten cents for each patent desired. The number, name of inventor and title of patent should be given. Personal checks and postage stamps are not accepted. Books of coupons may be purchased for $2.00 or $10.00, good for 20 or 100 patents, respectively. Coupons do not have to be accompanied by letters of transmittal.

July 1, 1941

2,247,351. Prolamine composition. Pierre Drewsen and John R. Little, assignors to The Hinde & Dauch Paper Company, Sandusky, Ohio. Filed Sept. 2, 1938. 11 claims. (Cl. 134-12). A composition containing zein and alkali rosinate in an aqueous solution is used as a coating material.

2,247,355. Method of making a compressed and densified product. George B. Brown, assignor to Johns-Manville Corporation, New York, N. Y. Filed July 18, 1936. 1 claim. (Cl. 92-21). Wall sheets or blocks are formed of wood fibers, hydrated lime and finely divided diatomaceous earth.

2,247,496. Process of refining and fractionation of tall oil. Arthur W. Hixson and Ralph Miller, assignors to The Chemical Foundation, Incorporated, New York, N. Y. Filed March 29, 1939. 4 claims. (Cl. 260-97.5). Tall oil is dissolved in a mixture of liquefied, normally gaseous hydrocarbons, the solution filtered, and the clear solution is warmed under pressure until substantially all the rosin acids have separated; the rosin phase is separated from the hydrocarbon phase and the fatty acids recovered by removal of the solvent.

2,247,584. Process of recovering chemical from waste pulping liquor. Harold R. Murdock, assignor to The Champion Paper and Fibre Company, Canton, N. C. Filed June 17, 1937. 3 claims. (Cl. 92-2). The sulphate waste liquor, prior to incineration, is treated with a sulphur- and sodium-containing by-product spent caustic from the treatment of oil, in an amount sufficient to make up the sodium content of the original pulping liquor.

2,247,633. Fireproofing paint. William K. Hearn, Seattle, Wash. Filed Jan. 16, 1939. 2 claims. (Cl. 134-44). A paint suitable for wood, paper, etc., contains 5 oz. antimony chloride, 2.5 lb. glue powder, 10 lb. mineral coloring matter and 2.5 lb. diatomaceous earth in five gallons of cold, soft water.

2,247,665. Chipper. Peter N. Ottersland, Watertown, N. Y. Filed July 13, 1938. 3 claims. (Cl. 144-176). An arrangement of a plurality of cutting knives on a rotatable disk of a chipper.

2,247,871. Packing of cigarettes or other articles. John Walker Chalmers, assignor to Molins Machine Company, Limited, Deptford, London, England. Filed July 31, 1939. 20 claims. (Cl. 93-3). A box making machine.

July 8, 1941

2,248,194. Pasting apparatus. William W. Prichard, assignor to United Shoe Machinery Corporation, Borough of Flemington, N. J. Filed Jan. 5, 1939. 7 claims. (Cl. 91-47).

2,248,213. Decalcomania transfer and method. Roy C. Beck, assignor to Vitachrome, Inc., Los Angeles, Calif. Filed Aug. 8, 1938. 12 claims. (Cl. 41-33).

2,248,233. Surfaced wallboard and the like. Clark C. Heritage, assignor to Wood Conversion Company, Cloquet, Minn. Filed Sept. 10, 1938. 1 claim. (Cl. 20-91). A cross section of the board exhibits an irregular contour line of hills and valleys at the finished surface, thus preventing warping.

2,248,255. Machine for applying and drying adhesive. Edwin G. Staude, Minneapolis, Minn. Filed Aug. 3, 1939. 18 claims. (Cl. 91-18). Means for applying a liquid and then a dry adhesive to a blank, thus quickly drying and increasing the amount of adhesive.

2,248,534. Method of making paper containers. Günther Meyer-Jagenberg, Dusseldorf, and Adolf Conrad Plötze, Berlin-Charlottenburg, Germany. Filed April 26, 1937. 6 claims. (Cl. 93-60). Method of producing bottle-like shaped paper containers.

2,248,535. Process and apparatus for manufacturing paper containers. Günther Meyer-Jagenberg and Karl Küchler, Dusseldorf, Germany. Filed June 29, 1939. 9 claims. (Cl. 93-36). Process of manufacturing paraffined or other impregnated paper containers with a folding closure.

2,248,617. Article made of cellophane. Paul Feeley and Dikran Dingilian, New York, N. Y. Filed Jan. 7, 1939. 1 claim. (Cl. 154-60). Two outside layers of normally flexible sheet cellophane have between them a thick mass of crumpled cellophane.

2,248,636. Bentonite product. James Marsden, assignor to General Electric Company, Schenectady, N. Y. Filed March 25, 1939. 5 claims. (Cl. 106-287). A sheet material comprises the dried residue of bentonite gel containing about one per cent of triethylenetetramine.

2,248,649. Method and machine for folding sanitary napkins. Oscar T. Thompson, assignor to International Cellucotton Products Company, Chicago, Ill. Filed June 27, 1938. 7 claims. (Cl. 154-29).

2,248,667. Method and machine for folding sanitary napkins. Charles A. Fourness and Charles J. Greiner, assignors to International Cellucotton Products Company, Chicago, Ill. Filed Jan. 5, 1938. 6 claims. (Cl. 154-29).

2,248,744. Taping machine. Harry L. Cohen, assignor to S & S Corrugated Paper Machinery Co., Inc., Brooklyn, N. Y. Filed March 30, 1938. 6 claims. (Cl. 93-56). An apparatus for applying tape to successive moving cartons.

2,248,853. Abrasive articles and method of making same. Richard Paul Carlton and Theodore Joseph Miller, assignors to Minnesota Mining & Manufacturing Company, St. Paul, Minn. Filed June 3, 1940. 3 claims. (Cl. 51-298). Method of depositing granular coating material on an adhesive backing.

2,248,895. Bag making machine and method. Hale W. Parrish, assignor to Klean Holder Corporation, Detroit, Mich. Filed May 29, 1939. 20 claims. (Cl. 93-8).

2,248,906. Paper-making apparatus. William M. Leesom, assignor to The Sandy Hill Iron & Brass Works, Hudson Falls, N. Y. Filed Oct. 3, 1938. 4 claims. (Cl. 92-43). Provision for moving the cylinder mold back and forth and up and down relative to the vat and the walls so as to provide a varying space between the mold and the wall.

July 15, 1941

2,248,961. Coating composition. Herbert C. Comstock, Mount Kisco, N. Y. Filed June 21, 1938. 3 claims. (Cl. 134-1). An oil varnish containing beeswax, paraffin wax, boiled linseed oil and mineral spirits.

2,248,978. Delignification of black liquor soap. Kenneth N. Francisco, assignor to American Cyanamid & Chemical Corporation, New York, N. Y. Filed Feb. 14, 1938. 5 claims. (Cl. 260-97.5). Lignin is removed from black liquor soap by extraction with a relatively dilute aqueous solution of sodium hydroxide, carbonate and sulfide.

2,249,000. Building material. Robert T. Johnston, assignor to Union Carbide and Carbon Company, New York, N. Y. Filed Sept. 25, 1936. 2 claims. (Cl. 154-51). Roofing material.

2,249,024. Gluing machine. Julius M. Minkow, assignor to Minco Products Corporation, New York, N. Y. Filed June 21, 1939. 10 claims. (Cl. 91-51).

2,249,052. Germproof paper milk container. Otto E. Seiffert, Union, N. J. Filed July 28, 1938. 3 claims. (Cl. 229-7).

2,249,088. Coating apparatus and method. John D. Murray, assignor to The Liquafilm Corporation, Chicago, Ill. Filed Jan. 9, 1940. 30 claims. (Cl. 91-33). An apparatus for uniformly smoothing coating material upon a sheet surface.

2,249,089. Coating method and apparatus. John D. Murray and Russ B. Leech, assignor to The Liquafilm Corporation, and Standard Process Corporation, Chicago, Ill. Filed March 6, 1939. 10 claims. (Cl. 91-33). A method of uniformly and smoothly leveling coating material over a sheet surface which comprises the steps of drawing the surface over a plurality of spaced, stationary, smooth faces and then contacting the surface with a smooth edge.

2,249,118. Impregnated paper. Francis De Witt, assignor to Pervel Corporation, New York, N. Y. Filed Jan. 7, 1938. 7 claims. (Cl. 91-68). Paper impregnated with a softening agent and a water-insoluble filler capable of adsorbing and retaining the softening agent.

2,249,128. Cylinder paper machine. Philip H. Goldsmith, Hamilton, Ohio. Filed Dec. 23, 1937. 2 claims. (Cl. 92-43). Conduits connecting the vat circle space, the main supply line and the pump suction line.

2,249,174. Process for producing white wood pulp of high solution viscosity and purity. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Feb. 10, 1936. 2 claims. (Cl. 92-11). Unbleached chemical wood pulp is chlorinated, refined with hot dilute alkaline liquor, bleached to whiteness and refined with strong caustic soda solution, the first treatment being at a temperature not exceeding 100 deg. C. and the second at 20 to 50 deg. C.

2,249,179. Manufacture of binder-containing waterlaid felts. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed July 8, 1938. 5 claims. (Cl. 92-39). A wire cloth is thinly coated with a hydrophobic substance prior to the deposition of a waterlaid felt from an aqueous suspension of fiber and binder, the substance being selected from the waxes and oils.

2,249,182. Machine for waxing blanks. Melvin H. Sidebotham and Gordon L. Sidebotham, assignors to Harlow M. Russell, Chelsea, Mass. Filed June 4, 1938. 3 claims. (Cl. 91-51).

2,249,200. Adhesive applicator for paper tape. Claude M. Edwards, assignor to Plant Equipment Corporation, Indianapolis, Ind. Filed April 3, 1939. 4 claims. (Cl. 91-12).

2,249,205. Method and apparatus for applying temporary protective coatings to articles. Merrill E. Hansen, assignor to American Anode, Inc., Akron, Ohio. Filed May 12, 1934. 11 claims. (Cl. 91-45). Means for applying a readily removable coating of latex.

2,249,222. Table construction for paper drills. Henry C. Nygren, assignor to Nygren-Dahly Company, Chicago, Ill. Filed Jan. 23, 1939. 6 claims. (Cl. 77-63).

2,249,392. Container and method of making the same. George Arlington Moore, assignor to Humoco Corporation, Louisville, Ky. Filed Aug. 16, 1938. 16 claims. (Cl. 93-36). Metallic foil is laminated to a sheet of a fibrous material and the other side is waxed.

2,249,412. Coating composition and the method of preparing the same. Frank Wm. Yeager, assignor to The Barrett Company, New York, N. Y. Filed April 16, 1938. 8 claims. (Cl. 106-278). A method of making a substantially non-sedimenting, self-drying bituminous coating composition from coal-tar pitch.

2,249,431. Box making machine. Carl A. Moeller, assignor to Norfolk Paper Co., Inc., Randolph, Mass. Filed Feb. 12, 1940. 7 claims. (Cl. 93-39).

2,249,432. Box making machine. Carl A. Moeller, assignor to Norfolk Paper Co., Inc., Randolph, Mass. Filed Feb. 12, 1940. 3 claims. (Cl. 93-39).

2,249,451. Patch applying for satched bottom bags. Louis Bischoff, Rupert Loeffler, Jr., and Edward Jaeger, assignors to Oneida Paper Products, Inc., New York, N. Y. Filed March 15, 1938. 6 claims. (Cl. 93-8).

2,249,470. Apparatus for uniting wax coated paper. Harold E. Hallman, Catonsville, Md. Filed Aug. 27, 1938. 7 claims. (Cl. 93-8). Apparatus for sealing bags made from wax-coated paper.

2,249,569. Treatment of clay by flotation. Donald S. Phelps, assignor to Edgar Brothers Company, Metuchen, N. J. Filed July 29, 1940. 6 claims. (Cl. 209-166). Air is blown through a clay pulp containing sulphite waste liquor to produce a clay-selecting froth.

2,249,570. Fractionation of clay. George J. Lane and Donald S. Phelps, assignors to Edgar Brothers Company, Metuchen, N. J. Filed July 29, 1940. 6 claims. (Cl. 209-166). In the fractionation of clay the pulp is subjected to froth flotation treatment in the presence of sulphite waste liquor.

2,249,646. Bleaching cellulose with titanium compounds. Alfred O. Bragg, assignor to Diamond Alkali Company, Pittsburgh, Pa. Filed June 28, 1940. 17 claims. (Cl. 8-105). A titanium compound in which the titanium has a valence less than four is added to an oxidizing bleaching solution after the chlorination action has been substantially completed.

JULY 22, 1941

2,249,766. Alkali metal salt of hydrogenated rosin. Irvin H. Humphrey, assignor to Hercules Powder Company, Wilmington, Del. Filed March 4, 1938. 4 claims. (Cl. 134-21). A dry rosin size comprises an alkali-metal salt of a hydrogenated rosin which is reduced to an extent greater than 50 per cent of the theoretical for two double bonds of its unsaturated rosin acid radicals.

2,249,773. Method and means for gumming envelopes and similar sheet materials. John A. Mattera, assignor to Envelope Machine Corp., New York, N. Y. Filed July 19, 1939. 15 claims. (Cl. 93-62).

2,249,820. Register control for paper cutting machines. Finn H. Gulliksen, assignor to Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. Filed June 23, 1939. 9 claims. (Cl. 164-68).

2,249,859. Apparatus for and method of making collapsible containers. George J. Shearer, assignor to Shearer Paper Box Co., Inc., Cincinnati, Ohio. Filed Sept. 18, 1940. 22 claims. (Cl. 93-49).

2,249,959. Insulated electrical conductor. Vaughn L. Johannessen, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed Aug. 5, 1939. 1 claim. (Cl. 174-121). Felted paper pulp, each fiber of which is coated with a condensation product of cashew nut oil without the material entering materially into the substance of the fiber.

2,250,032. Manufacture of electric cables. Thomas Lloyd Osborne and Russell Swale Vincent, assignors to Callender's Cable and Construction Company Limited, London, England. Filed May 11, 1938. 6 claims. (Cl. 173-244). A film of cellulose rosinate is formed on paper containing about 5 per cent of rosin by heating it under a vacuum.

2,250,041. Zein coating composition and method of preparing same. Oswald C. H. Sturken, assignor to Corn Products Refining Company, New York, N. Y. Filed Aug. 5, 1939. 9 Claims. (Cl. 106-152). A coating composition comprises zein, ethyl alcohol, a solvent for the two and plasticizers.

2,250,119. Manufacture of abrasive coated webs. John A. Williamson, assignor to The Carborundum Company, Niagara Falls, N. Y. Filed March 25, 1940. 5 claims. (Cl. 51-293). A method for removing the excess of adhesive and abrasive grains from a web by a high velocity stream of gas.

JULY 29, 1941

2,250,681. Adhesive. George L. Schwartz, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed April 21, 1939. 1 claim. (Cl. 260-9). An adhesive composition consists of finely divided unswollen unhydrolyzed starch suspended in an aqueous solution of a polyvinyl alcohol.

2,250,683. Acoustic material. Cyril A. Siechta, St. Paul, Minn. Filed Jan. 22, 1937. 4 claims. (Cl. 154-44).

2,250,699. Machine for making satchel-bottom bags. Ludwig Bischoff, assignor to Oneida Paper Products, Inc., New York, N. Y. Filed March 2, 1940. 2 claims. (Cl. 93-27).

2,250,917. Form lifter for box wrapping mechanism. Ernest G. Rider, assignor to Stokes and Smith Company, Summerdale, Pa. Filed April 13, 1940. 3 claims. (Cl. 93-54.2). A part of the mechanism for applying wrappers to boxes.

2,250,918. Coating apparatus for rigid building elements. Carlisle K. Roos, assignor to United States Gypsum Company, Chicago, Ill. Filed August 10, 1940. 5 claims. (Cl. 91-29). A conveyor for shingle-like elements.

2,250,921. Apparatus for closing and sealing filled bags. Douglas R. Warren, assignor to Franklin Steel Works, Joliet, Ill. Filed Jan. 12, 1940. 14 claims. (Cl. 93-6). Method for applying adhesive to the folded upper portion of moving bags in a packaging machine.

2,251,102. Method of and apparatus for packaging matches. Fritz Atterberg, New York, N. Y. Filed Feb. 2, 1939. 5 claims. (Cl. 93-2). Method of forming match packages.

2,251,243. Art of pulp molding. Walter H. Randall, assignor to The Canal National Bank of Portland, Portland, Maine. Filed June 16, 1937. 2 claims. (Cl. 92-56). Method of molding a fibrous pulp container for foods and beverages.

2,251,246. Digester control. Douglas H. Annin, assignor to The Brown Instrument Company, Philadelphia, Pa. Filed Oct. 19. 1938. 5 claims. (Cl. 236-46). Apparatus for regulating the temperature of a digester according to a predetermined schedule.

AUGUST 5, 1941

2,251,264. Means of coating material. Samuel H. Berch, Beverly Hills, and George Pieretti, Los Angeles, Calif. Filed Aug. 9, 1938. 5 claims. (Cl. 91-43). A device for coating paper having a nozzle with a slotted opening extending the width of the paper and so placed to allow the flow of liquid from the nozzle to spread upon the sheet as the material moves vertically.

2,251,270. Cellulosic sheet material and process for making the same. Emil Czapek, assignor to Guaranty Trust Company of New York, New York, N. Y. Filed May 13, 1938. 8 claims. (Cl. 91-68). Regenerated cellulose sheets are waterproofed by coating with an emulsion of urea-formaldehyde resin, alkyd resin, organic solvents and water with final heating for three minutes at 200 to 300 deg. C.

2,251,273. Adhesive sheet and method of making the same. Richard Gurley Drew, assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn. Filed March 9, 1933. 4 claims. (Cl. 91-68). A basic coating of rosin and rubber has superimposed upon it a coating of cellulose nitrate.

2,251,295. Method and apparatus for coating sheet material. Horace A. Sheesley, assignor to Tufide Products Corporation, Portland, Maine. Filed Nov. 2, 1936. 5 claims. (Cl. 91-68). A water- and grease-proof sheet is prepared with a coating composition composed of latex, animal glue, a tanning agent and an alcohol.

2,251,296. Paper product. Joseph H. Shipp, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed June 1, 1938. 17 claims. (Cl. 91-68). Greaseproof paper is prepared by coating with a solution of polyvinyl alcohol.

2,251,492. Paper machine press. Bernard A. Malkin, assignor to Dominion Engineering Works Limited, Lachine, Quebec, Canada. Filed Aug. 19, 1937. 8 claims. (Cl. 92-49). Three press rolls are arranged in triangular formation so that adjustment may be readily made to effect any desired distribution of the nip pressure between the top roll and the two bottom rolls; the first bottom roll is a suction roll.

2,251,513. Corrugating machine. William H. Cannard, Green Bay, Wis. Filed Oct. 20, 1936. 1 claim. (Cl. 134-30). A corrugating unit adapted to form longitudinal corrugations.

2,251,515. Manufacture of alkali metal silicate solutions. Daniel B. Curll, Jr., assignor to Philadelphia Quartz Company, Philadelphia, Pa. Filed Jan. 23, 1939. 19 claims. (Cl. 23-110). Method of dissolving silicate glass in water.

2,251,613. Surface smoothness tester. Hermann Kott, assignor to Alco-Gravure Division of Publication Corporation, New York, N. Y. Filed March 10, 1938. 13 claims. (Cl. 88-14). An optical system for identifying the smoothness characteristics of paper surfaces.

2,251,671. Folding machine. Henry Forst and Edward M. Norton, assignors to Forst Packing Company, Inc., Kingston, N. Y. Filed June 18, 1940. 6 claims. (Cl. 93-2).

2,251,752. Sized regenerated cellulosic pellicle. James A. Mitchell, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed July 23, 1938. 21 claims. (Cl. 91-68). Regenerated cellulose is sprayed with a solution of 16 parts of stearic acyloin in 1000 parts of toluene.

2,251,869. Pigment. David L. Gamble and James H. Haslam, assignor to The New Jersey Zinc Company, New York, N. Y. Filed April 6, 1939. 16 claims. (Cl. 134-78). Manufacture of zinc oxide pigment.

2,251,870. Pigment. David L. Gamble and James H. Haslam, assignor to The New Jersey Zinc Company, New York, N. Y. Filed April 11, 1939. 10 claims. (Cl. 106-296). Manufacture of zinc oxide pigment.

2,251,871. Zinc oxide pigment. David L. Gamble and James H. Haslam, assignors to The New Jersey Zinc Company, New York, N. Y. Filed May 1, 1941. 11 claims. (Cl. 106-296). Manufacture of zinc oxide pigment.

2,251,872. Zinc oxide pigment. David L. Gamble and James H. Haslam, assignors to The New Jersey Zinc Company, New York, N. Y. Filed May 1, 1941. 6 claims. (Cl. 106-296). Manufacture of a zinc oxide pigment.

2,251,883. Means for erecting cartons. Carl Wilhelm Hartmann, assignor to Satona Limited, Edinburgh, Scotland. Filed April 27, 1940. 5 claims. (Cl. 93-53). Mechanism for squaring out collapsed tubular carton blanks.

2,251,884. Means for applying sealing strips, labels, or the like to carton ends. Carl Wilhelm Hartmann, assignor to Satona Limited, Edinburgh, Scotland. Filed April 27, 1940. 10 claims. (Cl. 216-25).

2,251,890. Supercalendering process. William J. Montgomery, assignor to The Champion Paper and Fibre Company, Hamilton, Ohio. Filed June 25, 1937. 4 claims. (Cl. 92-76). One side of a surface of paper is moistened and pressed against a metallic supercalender roll by means of a nonmetallic supercalender roll before material penetration of the moisture in the web.

AUGUST 12, 1941

2,251,912. Fourdrinier wire stringing carriage. Earl E. Berry and Lloyd Hornbostel, assignors to Beloit Iron Works, Beloit, Wis. Filed June 28, 1939. 9 claims. (Cl. 242-90).

2,251,975. Rotary lip knife for bag machines. Walter Bochow, assignor to Equitable Paper Bag Co., Inc., Long Island City, N. Y. Filed April 18, 1940. 6 claims. (Cl. 93-19).

2,252,091. Moistureproof sheet. Philipp Müller and Otto Herrmann, assignors to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Aug. 13, 1938. 13 claims. (Cl. 91-68). A glycerinated water-sensitive nonfiborus cellulosic base has a moistureproofing surface coating (a cellulosic derivative filmformer and a wax moistureproofing agent) and an intermediate coating (an artificial resin).

2,252,204. Method and apparatus for coating paper. Arthur Reilly, assignor to S. D. Warren Company, Boston, Mass. Filed March 7, 1939. 5 claims. (Cl. 91-18). An apparatus arranged to direct a jet of air against the applicator roll to redistribute, smooth, and even the coating materials.

2,252,322. Alternator for paper-folding machines. Cecil Ivan Knapp, Camas, Washington, Filed Nov. 30, 1940. 9 claims. (Cl. 270-85).

2,252,345. Coating sheet material. Stanley J. Johnson, assignor to S. D. Warren Company, Boston, Mass. Filed June 11, 1938. 14 claims. (Cl. 91-32). A mobile coating composition is spread and smoothed simultaneously on the two sides, on one side by an air jet and on the other by a rigid surface.

2,252,360. Container and method of making same. Cesare Barbieri, assignor to Dixie-Vortex Company, Chicago, Ill. Filed March 9, 1940. 7 claims. (Cl. 93-39.1).

2,252,435. Carton sealing means. Tracy H. Lust, assignor to Armstrong Paint & Varnish Works, Chicago, Ill. Filed May 20, 1940. 7 claims. (Cl. 93-6).

2,252,485. Coating composition. Carl Max Hull, assignor to Standard Oil Company, Chicago, Ill. Filed Oct. 30, 1937. 3 claims. (Cl. 260-36). The composition contains about 90 per cent of chlorinated isobutylene polymers and 10 per cent of chlorinated paraffin wax.

2,252,486. Coating composition and the like. Maurice H. Arveson, assignor to Standard Oil Company, Chicago, Ill. Filed Oct. 30, 1937. 3 claims. (Cl. 260-32). A flame- and water-proofing agent consists of an organic solvent, a chlorinated polymer of isobutylene and a chlorinated diphenyl plasticizing agent.

2,252,585. Means for drying corrugated board. William R. Swanson and Peter Rintoul, assignors to Gair Company Canada Limited, Toronto, Ontario, Canada. Filed March 20, 1939. 6 claims. (Cl. 34-160).

2,252,587. Manufacture of granular coated products. Frank J. Tone and Harry C. Martin, assignors to The Carborundum Company, Niagara Falls, N. Y. Filed May 13, 1936. 9 claims. (Cl. 51-298).

AUGUST 19, 1941

2,252,781. Apparatus for defibering and deinking papers. Edward Henry Partington, Wembley, and William Henry Porritt, Chilcompton, England. Filed Feb. 10, 1938. 1 claim. (Cl. 92-20). A machine whereby a suspension of paper is operated on to form a stream or streams so directed that sufficient friction is set up between the paper or like particles carried in the suspension to result in the separation of the fibers.

2,252,806. Manufacture of one-piece dry-sealing window envelopes. Vincent E. Heywood, assignor to United States Envelope Company, Springfield, Mass. Filed Oct. 10, 1938. 2 claims. (Cl. 93-61).

2,252,890. Pulp screen. Elon Wilhelm Hedberg, Wallvik, Sweden. Filed March 25, 1939. 3 claims. (Cl. 60-97).

2,253,060. Coating apparatus. Eugene R. Clearman, assignor to Eastman Kodak Company, Rochester, N. Y. Filed Dec. 16, 1939. 4 claims. (Cl. 91-10).

2,253,275. Laminated tube winding machine. Otto M. Hoch and Carl J. Studeman, assignors to M. D. Knowlton Co., Rochester, N. Y. Filed July 31, 1930. 14 claims. (Cl. 93-81).

2,253,356. Method and apparatus for measuring the water resistance of paper. Johannes A. Van den Akker, assignor to The Institute of Paper Chemistry. Appleton, Wis. Filed Aug. 12, 1939. 7 claims. (Cl. 73-51). An optical device using a fluorescent material (when wet), ultraviolet light and a second source of light, with means for varying the intensity of the second beam to match it with the intensity of the fluorescent light and means for varying the intensity of the second source of light to match the hue of the color of the fluorescent light and the beam.

AUGUST 26, 1941

R21,890. Industrial and papermakers' felt. Patrick H. Walsh and Percival T. Gates, as-

signors to Dryeor Felt Company, Belleville, N. J. Original No. 2,165,772, dated July 11, 1939. Application for reissue Jan. 2, 1940. 3 claims. (Cl. 28-4).

2,253,511. Paper treating machine. August D. Eitzen, assignor to News Projection Corporation, New York, N. Y. Filed May 1, 1937. 3 claims. (Cl. 34-155). A means for drying a freshly coated tape and also means for smoothing out the tape and centering it.

2,253,517. Protein composition. Albert J. Heberer, assignor to The Glidden Company, Cleveland, Ohio. Filed July 25, 1938. 10 claims. (Cl. 134-12). A soya bean protein composition is prepared by treating an alkaline solution at pH 7 to 8 with an oil fatty acid.

2,253,529. Apparatus for handling sheet material. Frank Palewick, Max Drescher and Milton F. Rosentreter, assignors to Crown Cork & Seal Company, Inc., Baltimore, Md. Filed June 8, 1939. 6 claims. (Cl. 91-55). A combination of a drying and coating apparatus.

2,253,551. Titanium pigment production. James Eliot Booge, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed June 22, 1938. 17 claims. (Cl. 106-296). A white pigment is prepared by heating a mixture of anatase titanium dioxide and a minor amount of zinc oxide at a temperature between 840 and 1100 deg. C.

2,253,655. Coated or impregnated paper product and method of making same. Frederick Shurley, assignor to Crown Cork & Seal Company, Inc., Baltimore, Md. Filed April 1, 1936. 6 claims. (Cl. 91-68). Paper is treated with a composition comprising glycerol and a glyceryl stearate, glycol stearate, triethanolamine stearate or tribydroxyethylamine stearate.

2,253,718. Manufacture of indented, corrugated papers. John A. McKeage, assignor to Sherman Paper Products Corporation, Newton, Mass. Filed Jan. 11, 1939. 2 claims. (Cl. 154-55). An indented corrugated paper wrapping and packaging material adapted to be flexed across its corrugations.

2,253,773. Treating, especially softening, cellulosic textile materials. Kurt Engel and Kurt Pfaehler, assignors to the firm J. R. Geigy A. G., Basel, Switzerland. Filed April 14, 1938. 6 claims. (Cl. 28-1). A process for softening cellulosic materials, which comprises treating the said material with an aqueous bath containing as its essential active ingredient a water-soluble derivative of urea.

2,254,016. Coating apparatus. Romie L. Melton and Henry P. Kirchner, assignors to The Carborundum Company, Niagara Falls, N. Y. Filed Jan. 20, 1933. 10 claims. (Cl. 91-18). Apparatus for the manufacture of granular coated webs.

September 2, 1941

2,254,297. Papermaking machine. Herman L. Kutter, assignor to The Black-Clawson Company, Hamilton, Ohio. Filed Feb. 9, 1938. 4 claims. (Cl. 92-45). A table section having a series of table rolls, the section comprising a pair of spaced side rails supporting opposite ends of the table rolls and means for laterally vibrating the side rails.

2,254,336. Container manufacture. Rudolph Williams von Sydow and Walter E. Sooy, assignors to The Gardner-Richardson Company, Middletown, Ohio. Filed Dec. 8, 1939. 15 claims. (Cl. 91-45). A device for applying a surfacing material to the interior of a tubular body.

2,254,428. Decalcomania. Ferdinand W. Humphner, assignor to Mid-States Gummed Paper Co., Chicago, Ill. Filed June 16, 1939. 6 claims. (Cl. 41-33). The imprint on the paper base is normally concealed by the adhesive and body layers.

2,254,467. Safety knife bar latch for paper cutter. Freeman Barney, assignor to The Challenge Machinery Company, Grand Haven, Mich. Filed Aug. 19, 1940. 5 claims. (Cl 192-131).

2,254,531. Coating apparatus. Henry P. Kirchner, Romie L. Melton, and Raymond C. Benner, assignors to The Carborundum Company, Niagara Falls, N. Y. Filed Oct. 10, 1932. 7 claims. (Cl. 91-18). Apparatus for the manufacture of webs coated with oriented granular material by means of a magnetic field.

2,254,856. Laminated insulation material. Meredith S. Randall, assignor to Woodall Industries Incorporated, Detroit, Mich. Filed Dec. 6, 1937. 3 claims. (Cl. 154-44).

2,254,907. Apparatus for making bags and the like. Adolph Potdevin and George E. Hampton, assignors to Potdevin Machine Company, Brooklyn, N. Y. Filed June 22, 1938. 2 claims. (Cl. 93-19).

September 9, 1941

2,255,056. Device for removing static electricity from paper while being printed. Ottwin Hofer, Lennox City, S. Dak. Filed May 20, 1940. 5 claims. (Cl. 219-39).

2,255,123. Manufacture of paper backed lathing. Richard T. McGee and Leonard W. Cross, assignors to The Consolidated Expanded Metal Companies, Wheeling, W. Va. Filed Oct. 23, 1937. 7 claims. (Cl. 154-1).

2,255,139. Flotation of calcium carbonate ores. Mikael Vogel-Jorgensen, assignor to Separation Process Company, Borough of Catasauqua, Lehigh County, Pa. Filed July 2, 1940. 13 claims. (Cl. 209-166). A pulp containing calcium carbonate is subjected to froth flotation in the presence of a collecting agent capable of floating the calcium carbonate.

2,255,294. Coating apparatus. Romie L. Melton, Raymond C. Benner, and Henry P. Kirchner, assignors to The Carborundum Company, Niagara Falls, N. Y. Filed July 23, 1934. 1 claim. (Cl. 91-18). Apparatus for the manufacture of abrasive coated webs.

2,255,371. Treatment of clay. Ira Williams and Nathan Millman, assignors to Sgoda Corporation, Huber, Ga. Filed April 16, 1940. 13 claims. (Cl. 23-1). The process of treating a clay slip containing iron in solution and having a pH below 5 due to an acid stronger than carbonic acid, with calcium carbonate in an amount sufficient to increase the pH of the slip above 5 but insufficient to raise the pH of the slip to 7.

2,255,397. Machine for laminating paper. Melvin H. Sidebotham, West Newton, Mass., assignor of one-half to Harlow M. Russell, Chelsea, Mass. Filed Oct. 5, 1938. 5 claims. (Cl. 154-37). A means for depositing wax between two webs of paper.

2,255,429. Apparatus for blunging and decolorizing clay or the like. Sanford C. Lyons, assignor to Bird Machine Co., Walpole, Mass. Filed July 28, 1937. 6 claims. (Cl. 204-212). An electrolytic cell.

2,255,564. Composition suitable for use in the production of coated sheet material. Erich Gebauer-Fuelnegg, Louis K. Eilers, and Eugene W. Moffett, assignors to Marbon Corporation. Filed July, 25, 1941. 8 claims. (Cl. 260-734). A meltable wax-like composition comprising at least 20 per cent by weight of wax and the balance composed largely of a condensation product of rubber with chlorostannic acid or a halide of an amphoteric metal.

2,255,696. Means for safeguarding bank notes, bonds, and like documents of value from fradulent imitation. Sydney George Clifford, assignor to Waterlow & Sons Limited, London, England. Filed April 5, 1938. 16 claims. (Cl. 91-67.95). A material is incorporated which is fluorescent in ultraviolet light and the treated paper is covered with a transparent flexible solid film.

September 16, 1941

2,255,745. Box making machine. Nels A. Anderson, assignor to Fibreboard Products Inc., San Francisco, Calif. Filed July 29, 1940. 10 claims. (Cl. 93-36).

2,255,777. Manifold set assembling apparatus and method. Harry Sloper Jones, Chicago, Ill. Filed Jan. 30, 1939. 21 claims. (Cl. 270-52).

2,255,846. Paper-trimming machine. Samuel King Grammer, Houston, Tex. Filed Dec. 30, 1940. 4 claims. (Cl. 164-47).

2,255,951. Paper machine. Karl Helge Tomtlund, assignor to Aktiebolaget Karlstads Mekaniska Werkstad, Karlstad, Sweden. Filed Aug. 30, 1939. 11 claims. (Cl. 92-44). A pulp outlet nozzle on the breast box for supplying pulp to the wire above the breast roll.

2,255,953. Ornamental wrapping sheet and method of making the same. John G. Vergobbi, assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass. Filed Oct. 14, 1938. 2 claims. (Cl. 41-33). A single ply glossy ornamental paper sheet suitable for wrapping purposes.

2,255,982. Method of making tapered cups. Harold S. Labombarde, assignor to Dixie-Vortex Company, Chicago, Ill. Filed June 27, 1936. 11 claims. (Cl. 93-36.05).

2,256,082. Paper converting machine. Donald M. Feurt, assignor to Consolidated Cover Co., San Francisco, Calif. Filed Feb. 12, 1940. 15 claims. (Cl. 242-56).

2,256,124. Machine for making paper receptacles. Carl A. Moeller, assignor to Norfolk Paper Co., Inc., Randolph, Mass. Filed July 30, 1940. 3 claims. (Cl. 93-55.1).

2,256,263. Method of and apparatus for forming paper container bodies. John Haycock, assignor to Continental Can Company, Inc., New York, N. Y. Filed Oct. 10, 1940. 15 claims. (Cl. 93-82).

2,256,391. Method for preparing oxidized cellulose. Gordon D. Hiatt, assignor to Eastman Kodak Company, Rochester, N. Y. Filed Dec. 5, 1940. 5 claims. (Cl. 260-212). Cellulose is treated with at least approximately four parts of a mixture essentially consisting of liquid nitrogen dioxide and 5-15 per cent of nitric acid.

September 23, 1941

2,256,506. Method and apparatus for making bags. Melvin Wagner, assignor to Thomas M. Royal & Company, Philadelphia, Pa. Filed March 19, 1940. 10 claims. (Cl. 93-35). Multiply bags.

2,256,507. Apparatus for conditioning paper. Charles G. Weber and Martin N. Geib, assignors to the Government of the United States, as represented by the Secretary of Commerce. Filed July 28, 1939. 2 claims. (Cl. 34-83). A water spray apparatus.

2,256,526. Bag closing machine. Marcel A. Nicolas, assignor to Consolidated Packaging Machinery Corporation, Buffalo, N. Y. Filed April 8, 1939. 9 claims. (Cl. 93-6).

2,256,764. Foodstuff packaging process. Henry M. Scott, Sweetwater, Tenn. Filed Sept. 26, 1939. 3 claims. (Cl. 99-178). In packaging fusible cheese sheet cellulose is coated with a composition comprising approximately 90 per cent beeswax and 10 per cent turpentine.

2,256,853. Paper product. George L. Schwartz, assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed June 1, 1938. 1 claim. (Cl. 91-68). A grease-resistant paper is coated with a mixture of 87.7 per cent of clay, 1.3 per cent polyvinyl alcohol and 11 per cent thin boiling cooked corn starch.

2,256,888. Means and method of gluing waterproof blanks. Samuel Bergstein, Cincinnati, Ohio. Filed Jan. 29, 1940. 9 claims. (Cl. 93-36). Machine for making knock-down boxes from blanks having waterproofed surfaces.

2,256,916. Method of laminating paper. Van Hamm Wilshire, assignor to The Specialty Papers Company, Dayton, Ohio. Filed July 12, 1938. 2 claims. (Cl. 154-40). Method of making a laminated sheet of waxed paper for food wrappers.

September 30, 1941

2,257,113. Coating apparatus. Warren George, assignor to K-C-M Company, Dayton, Ohio. Filed Feb. 2, 1939. 6 claims. (Cl. 91-48). The sheet is passed through a chamber formed by the platen and doctors rolls and means are provided for withdrawing air from the chamber to create an inward suction between the rolls to level off the coating.

2,257,139. Method of making adhesive tapes. Frank J. Tone, Osborne L. Mahlman, and Fred Brown, assignors to The Carborundum Company, Niagara Falls, N. Y. Filed June 14, 1937. 5 claims. (Cl. 18-57).

2,257,243. Method and apparatus for closing paper containers. Günther Meyer-Jagenberg, Dusseldorf, Germany. Filed May 17, 1939. 10 claims. (Cl. 93-6).

2,257,261. Apparatus for coating. Cutler D. Knowlton, assignor to Hoague-Sprague Corporation, Lynn, Mass. Filed Nov. 24, 1939. 9 claims. (Cl. 91-50).

2,257,336. Knife for paper converting machines. Donald M. Feurt, assignor to Consolidated Cover Co., San Francisco, Calif. Filed March 26, 1941. 5 claims. (Cl. 164-70). A knife for making transverse cuts.

2,257,373. Method and apparatus for coating sheet materials. John R. Fanselow, assignor to K. C. M. Company, Dayton, Ohio. Filed Feb. 2, 1938. 24 claims. (Cl. 91-48). Excess of fluid coating material is applied to the sheet which is passed through a region of decreased pressure and the excess finally removed by a doctor.

2,257,429. Process for producing all-around extensible paper. Gottfried Ruegenberg, Dusseldorf-Oberkassel, Germany. Filed Aug. 2, 1938. 7 claims. (Cl. 154-33.05).

2,257,433. Method of an apparatus for manufacture of sealed packages. John S. Stokes, assignor to Stokes and Smith Company, Philadelphia, Pa. Filed Nov. 25, 1939. 18 claims. (Cl. 93-3).

2,257,573. Machine for manufacturing molded pulp articles. Walter H. Randall, assignor to The Canal National Bank of Portland, Portland, Maine. Filed Jan. 3, 1938. 8 claims. (Cl. 92-56).

2,257,576. Art of making vulcanized fiber. Jay Robinson, assignor to National Vulcanized Fibre Company, Wilmington, Del. Filed April 15, 1940. 15 claims. (Cl. 154-34). Vulcanized fiber is laminated with regenerated cellulose, cellulose ester or cellulose ether.

2,257,688. Apparatus for knocking up sheets of paper. Kenneth Warner Jones, Bush Hill Park, Enfield, England. Filed Dec. 8, 1939. 3 claims. (Cl. 271-89).

2,257,689. Machine for manufacturing bags. Theodore Jungmayr, assignor to the firm Fr. Hesser, Maschinenfabrik - Aktiengesellschaft, Stuttgart-Bad Cannstatt, Germany. Filed June 15, 1940. 10 claims. (Cl. 93-12).

Microscopic Observations of the Bonding Zone of Paper Coatings*

By Curtis R. Singleterry[1]

Abstract

A method of sectioning coated papers is described which permits precise microscopic observations on the coating-to-paper interface. These observations show that the coating is keyed to the paper by an intimate filling of the undercut regions about the surface fibers. The effectiveness of these keys in anchoring the coating depends upon the mechanical strength of the coating, which depends in turn upon casein content and formulation.

It is further observed that when unkeyed portions of the coating separate from the sheet a very thin film of coating remains attached to the paper so that failure in this case also is to be attributed to low mechanical strength of a special zone of the coating, and not to a lack of true adhesion strength at the actual coating-to-paper interface. The adhesion at this latter point is probably more than adequate in all practical casein bonded coatings.

The attempt to develop other materials to replace casein in paper coating formulation emphasizes the scarcity of fundamental information concerning the manner in which the coating is held to the stock and the actual functioning of the adhesive material employed. Questions have been raised as to whether the coating is held to the stock by the primary adhesive action of a film of casein between the stock and the coating, or whether it is keyed to the stock by a sort of lath and plaster effect produced by the penetration of the coating into undercut regions around and behind the surface fibers.

We have attempted to answer these questions by microscopic observations on suitably prepared cross sections of laboratory coated papers and upon the actual zone of failure where pigmented coatings have been stripped from the supporting stock. The study has included coatings upon three different coating stocks which were chosen as representatives of hard, medium and soft stocks.

FIG. 2

Left to Right. 12% Casein Coating on Raw Stocks 2, 1, and 3 Respectively. Through Nearly Crossed Polaroids, × 40.

Formulations of Coatings

The coatings were formulated with casein and H.T. clay, the casein being dispersed with 8% sodium carbonate and 2% ammonia and combined with a clay slip deflocculated with sodium carbonate and enough water to give 40% total solids in the resulting coating color. Colors were prepared containing 8, 10, 12, and 14% of casein on the basis of the clay. Certain coatings were pigmented by substituting 10% by weight of ferric oxide rouge for an equal weight of clay. All coatings were applied with a laboratory coater. The coating was brushed out and then passed under the doctor blade to obtain a coating weight of about 15 pounds per side per ream.

Some difficulty was experienced in preparing satisfactory thin cross sections of coated papers. Fair results may be obtained by embedding the specimen in a special microcrystalline petroleum wax of high melting point and sectioning by biological techniques, but such sections usually show fragments of coating

FIG. 1

Left. 14% Casein on Raw Stock 1. *Right.* 8% Casein on Raw Stock 1. Through Nearly Crossed Polaroids, × 40.

FIG. 3

Left. 12% Casein Coating on Felt Side of Coating Stock 1. *Right.* Same on Wire Side Through Nearly Crossed Polaroids, × 40.

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Ann Arbor, Mich., Sept. 16-19, 1941.

[1] Research Chemist with Glenn Davidson, Aurora, Illinois.

that have obviously been displaced during sectioning. Much better sections were obtained by embedding the specimen in a transparent plastic, grinding and polishing one side, cutting off the polished portion with a jeweler's hacksaw, attaching (finished side down) to a microscope slide and grinding and polishing to the desired thickness of 10 to 20 microns. A urea formaldehyde liquid resin containing zinc chloride was used for this work, but the methyl-methacrylate resin whose use has been reported recently by petrographic workers *(1)* should prove equally satisfactory. Such sections are a little tedious to prepare, but can be studied with complete assurance that the relations of coating and paper have not been disturbed during preparation of the slide.

Study of Cross Sections

Figure 1 is a photomicrograph of cross sections prepared by this method from specimens of Rawstock 1 coated respectively with 14% and 8% casein colors. Both specimens show clearly the keying of the coating into undercut portions of the paper surface in almost identical fashion. It is not uncommon

FIG. 4
Commercially Coated Papers. *Left.* Varnish Litho. *Middle and Right.* Half Tone Enamels. Through Nearly Crossed Polaroids, × 40.

to observe fibers completely embedded in the clay, as if they had been raised slightly from the surface during the coating operation. Lee *(2)* published a sketch of a cross section of a coated photographic paper and called attention to the irregular course of the boundary between the coating and the paper stock. He does not emphasize interlocking penetration for his specimen, but does suggest that the irregularity develops upon contact of the paper with moist coating color.

In spite of the general similarity of boundary outline, shown by the two coatings in Fig. 1, experienced

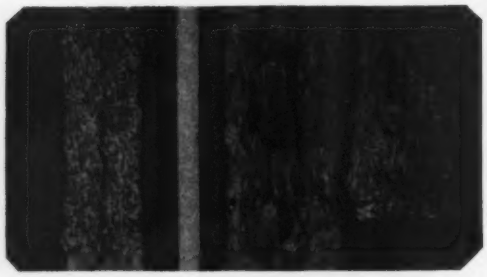

FIG. 6
Left. Pasted Playing Card Stock. *Right.* Coated Boards Used for Drug Cartons. Polarized Light, × 40.

FIG. 5
Commercially Coated Papers. *From Left to Right.* Varnish Litho. Gloss Ink Litho, No. 2 Folding Enamel, Offset Enamel. Through Nearly Crossed Polaroids, × 40.

observers are often able to distinguish strongly adherent from poor coatings, apparently upon the basis of a somewhat elusive difference between the two coating-to-paper boundaries, that with the low casein content being more distinct than that for the high casein, whose coating seems to grade off into the paper instead of stopping sharply. This may be due to deeper penetration of the coating into thin surface crevices between the fibers. The whole difference is found in a zone only one or two microns wide and we have not been able to secure photographs in which the phenomenon is convincingly shown.

In Fig. 2 the differences in keying which result from intrinsic differences in the surfaces coated can be seen. Paper 2 is hard sized, Paper 1 is a medium stock, and Paper 3 is soft sized. The keying of the coatings to the paper increases in the same order, and although keying is certainly only one of several factors involved in the attachment of the coating, it is interesting to note that a 12% casein-clay coating shows coating pick on Paper 2, gives failure partly in the coating and partly in the paper on 1, and complete failure in the paper with 3.

The difference between the wire and felt sides of Rawstock 1 are shown in Fig. 3 which compares the two sides of the sheet coated with the same 14% casein coating. There seems to be somewhat more

FIG. 7
Surfaces of Coated Papers from which the Coating Has Been Picked by Dennison Wax Test. *Upper Left.* 8% Casein. *Upper Right.* 10% Casein. *Lower Right.* 12% Casein. *Lower Left.* 14% Casein. *Center.* Uncoated Comparison Sheet. Transmitted Light, Crossed Polaroids, × 40.

opportunity for the entangled type of boundary on the felt side of this paper.

To make certain that our laboratory coating procedure was giving results comparable with those obtained in commercial coating preparations, specimens of coated papers from several sources were mounted in resin and sectioned. Several mills in the Kalamazoo Valley have supplied us generously with samples of rawstock for coating, with specimens of their coated papers, and with test data on the stocks we have used for laboratory coating, for which we are much indebted to them and to their technical personnel.

Figure 4 shows three such papers from three different coating mills. The specimen on the extreme left is a varnish-litho paper, and the other two are regular enamels for halftone reproduction. The interface shows the same general characteristics that have been noted in the laboratory coatings. The third section carries an island of included coating deep in the body of the sheet. The same thing shows up occasionally on other commercial papers and in a few of the experimental coatings. It furnishes further evidence of the faithfulness with which the coating fills the larger voids opening to the surface of the paper.

Figure 5 shows from left to right a varnish-litho sheet, a gloss-ink litho, a No. 2 folding enamel, and an offset enamel from another coater.

Figure 6 shows on the left a photomicrograph of a coated playing card stock built up from two sheets by pasting with a black tinted paste. The irregular bond line from the pasting is visible at the center. At the right are cross sections of two coated boards used for the manufacture of tooth paste and drug cartons. These are included partly as further examples of commercial coatings, and partly to show the range of paper products to which the resin sectioning technique can be applied.

The fate of the deeply keyed portions of a coating when failure occurs by picking was investigated by preparing a series of sheets whose coatings were pigmented with 10% of ferric oxide and sized respectively with 8, 10, 12, and 14% of casein. The coating was stripped from the sheets with Dennison waxes, and swatches of the stripped portions were mounted and photographed by transmitted light under fixed conditions of lighting and exposure. Photomicrographs of the stripped sections from the four coated sheets and from an uncoated section of Rawstock 1 are shown in Fig. 7. A large number

FIG. 8

Cross Sections of Coated Papers from which Coating Has Been Picked. *Left to Right.* Uncoated Control Sheet, 8% Casein, 10% Casein, 12% Casein. "Coated" Side to Left for all Sheets, × 40.

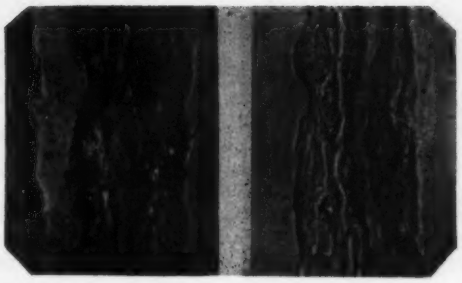

FIG. 9

Cross Sections of Coated Papers from which Coating Has Been Picked. × 165. *Left.* 8% Casein. *Right.* 12% Casein.

of the keys are seen to have been broken off and left locked in the fiber of the 8% casein coating, a much smaller number may be observed from the 10% coating, and perhaps fewer still from the 12 and 14% coatings. (These last two may not be exactly comparable with the lower percentage coatings, for major failure occurred here in the body of the rawstock, and the stripped surfaces obtained for microscopic examination had been formed more by a peeling action than by straight break-away.)

The differences in the amount of retained coating also could be readily noted by direct visual observation of the relative redness of the stripped areas. Papers 1, 2, and 3, coated with a rouge pigmented color carrying 8% casein, showed a variation in retention of keyed lumps of coating directly proportional to the variation in the amount of undercut fills of coating observed in Fig. 2.

Examination of the stripped surfaces shown in Fig. 7 with higher magnification showed clearly that

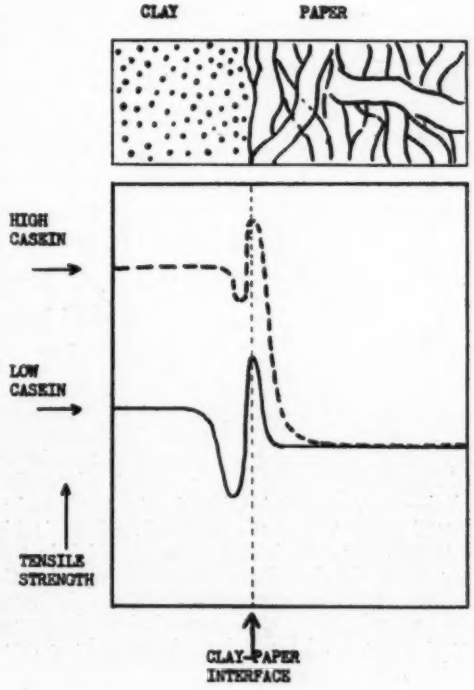

FIG. 10

Schematic Graph for Tensile Strength Relations in a Coated Paper.

a film of pigment and clay had remained on the paper when picking of the coating occurred. This is in agreement with the larger amount of light transmitted through the uncoated control, and is supported further by the photomicrograph of the 14% specimen. A single fiber lying at the surface of this piece has been stripped away with the coating, exposing a raw stock surface which has not been in direct contact with the body of the clay coating. This exposed strip is definitely lighter and cleaner than adjacent areas.

To investigate the thickness of this retained coating a duplicate series of these stripped sections was mounted in resin and examined in cross section. Figure 8 shows an uncoated control piece and specimens from which 8, 10, and 12% coatings have been stripped. The coated surface in each case is on the left. The layer of retained clay and pigment almost escapes detection in the edge view at low power, although broken keys are clearly visible at intervals along the paper surface.

Examination at higher magnification, however, reveals clearly the continuous or nearly continuous film of clay particles along every surface fiber. Figure 9 shows such higher magnification for sections of the 8 and the 12% coatings of the preceding figure. The film is one or two microns in thickness for the 8% sheet, and definitely thinner for the 12% specimen. Wax-mounted sections stained with hematoxylin by biological techniques show this same zone of adherent coating on stripped specimens. The thickness of the stained film of retained coating seems somewhat greater than that of the residue in the resin sections here presented, suggesting that possibly there has been an accumulation of extra casein along the coating-paper boundary which becomes visible only after staining. There is a faint violet staining on some sections which extends three or four microns down into the sheet from the clay, as if the casein had advanced along paths through which the clay could not follow.

Conclusions

The coating is keyed to the paper wherever opportunity offers. The effectiveness of these keys in anchoring the coating will depend upon the mechanical strength of the coating composition of which they are made. This strength is in turn a function of the amount and quality of the casein used, and of such other variables as the cutting agents, the pigment, and the method of preparation of the coating color.

The actual zone of failure when a coating picks is not the coating-to-paper interface, but a zone a micron or so away on the coating side which is weaker than either the interface or the main body of the coating. The controlling factor for picking is again the mechanical strength of a particular part of the coating, and not the firmness of the bond between the adhesive and the paper, which seems to be more than adequate in practical coatings. This may explain the relative unresponsiveness of coating formulae to the addition of small amounts of surface active agents, which might be expected to affect primarily the true adhesive-to-paper interface, the strength of which already affords a comfortable margin of safety.

The concept may be clarified by reference to the idealized graphs presented in Fig. 10 for tensile strength normal to the surface at various points within a coated sheet. The relative magnitudes indicated must be given qualitative significance only, although it is possible that extensions of the sort of work described by Sutermeister and Osgood *(3)* may sometime make a quantitative picture possible.

The paper will fail in each case at the lowest point on the tensile strength curve. For the low percentage casein this falls at the minimum within the coating, and for the higher percentage of casein it will come along the horizontal portion of the line representing the internal strength of the raw stock.

This work has not explained the cause of the weakness at the zone of failure in the coating. Some understanding of this cause is an evident prerequisite to any rational attempt to improve the attachment of paper coatings without correspondingly increasing the amount of adhesive employed. It may be hoped that stating the problem will set thinking and investigation in motion for its solution.

Literature Cited

(1) Bell, *Econ. Geol.* 34:804-11 (1939).
(2) Lee, *Tech. Assoc. Papers* 21:319 (1938).
(3) Sutermeister and Osgood, *Tech. Assoc. Papers* 24:136 (1941).

Sorbitol and Other Polyalcohols in Glue Coatings*

By H. C. Speel[1]

Abstract

The useful physical properties of the major commercial polyalcohols—ethylene glycol, glycerol, and sorbitol—are controlled primarily by the number of hydroxyl groups. The viscosity of sorbitol is higher than that of the 3-hydroxyl glycerol which in turn is higher than the 2-hydroxyl ethylene glycol. Other properties—volatility, hygroscopicity, density, organic solubility, and refractive index—follow the same relative pattern. The relationship can be expressed graphically in ascending and descending curves. This characteristic progression of properties is reflected in the properties imparted to many hydrophilic compositions flexibilized or softened by the polyalcohols.

Since the start of research nearly 17 years ago, we have been collecting information and data on the related polyalcohols—the glycols, glycerol, and sorbitol. All these aliphatic alcohols have two or more hydroxyl groups (*see* Table I). Ethylene glycol has two carbon atoms and two OH groups; glycerol has three carbon atoms and three OH groups, while sorbitol has six carbon atoms and six OH groups. Ethylene glycol is, therefore, a dihydric alcohol, glycerol a trihydric alcohol, and sorbitol hexahydric alcohol.

* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Ann Arbor, Mich., Sept. 16-19, 1941.
[1] Atlas Powder Company, Wilmington, Del.

TABLE I.—FORMULAS OF RELATED POLYALCOHOLS

2—HYDROXYL GROUPS	3—HYDROXYL GROUPS	6—HYDROXYL GROUPS
Ethylene Glycol	Glycerol	Sorbitol
H_2COH H_2COH	H_2COH $HCOH$ H_2COH	H_2COH $HCOH$ $HOCH$ $HCOH$ $HCOH$ H_2COH

Glycerol and its many varied uses is well known to the paper industry. As a matter of fact, a review of the recent literature on glycerin in paper was given at the 1939 Annual Meeting of the Technical Association of the Pulp and Paper Industry in New York *(1)*.

The much more recent commercial availability of the glycols and sorbitol has resulted in research which has led to their subsequent logical use as a replacement for, or in combination with, glycerol. The useful physical properties of these major commercial polyalcohols are related to the number of hydroxyl groups they have.

On examining commercial samples of these three typical polyalcohols, the most obvious difference is progressive increase in viscosity. The viscosity of the 6-hydroxyl member of the group, sorbitol, is higher than that of the 3-hydroxyl glycerol; which in turn is higher than that of the 2-hydroxyl ethylene glycol. With volatility the reverse is true. Ethylene glycol is appreciably volatile, glycerol only slightly so, and sorbitol completely nonvolatile. The glycols possess solvent properties for and are soluble in many organic solvents as well as water, while sorbitol, which is on the other side of glycerol, is essentially insoluble in everything except water and certain concentrations of alcohol; it is even less water-soluble than glycerol.

Various other physical properties of importance to paper chemists and producers follow the same relative pattern. As a matter of fact, the relationship can be expressed graphically in a series of ascending or descending curves. Thus we might show other such properties as hygroscopicity, refractive index, toxicity, and density.

Quite naturally, this characteristic progression of properties is reflected in the properties imparted to many hydrophillic compositions flexibilized or softened by the polyalcohols.

Taking animal glue as a specific example, it is possible to measure and plot such properties of a flexible glue composition as hygroscopicity, tensile strength, and viscosity. Straight glue-water jellies or "gels" dry out, shrink, and harden under normal humidity conditions. Such gels, like many similar substances, must hold a certain percentage of water to keep their full usefulness after application. Hence, a permanent flexibilizing or humectant agent is needed to stabilize the condition of the material and minimize the effect of changes in moisture content. Because the polyalcohols act not only as flexibilizers but also as "water-holders", they are logical softeners for animals glues. The properties of the resultant glue-softener-water mixture are affected by the various properties of the softening agent.

Viscosities of flexible glues depend not only on the grade of glue and its concentration *(2)* but also on the softener used and its concentration.

Because we are dealing with a 3-phase system of glue, softener, and water, a multitude of curves would be required for even one grade of glue. For sake of simplicity, Fig. 1 compares only sorbitol and glycerol and their viscosity effects on two grades of glue. The increasing viscosity is brought about by the fact that the water content is decreasing with increasing softener content because the glue is a fixed quantity. If viscosity at constant solids content or at constant water content were to be plotted against ratio of softener to glue (or percentage softener in the solids), the curve for glycerol would show a more rapid viscosity decrease than that for sorbitol. The curve showing ethylene glycol's effect would show an even more rapid decrease, showing that the less viscous the polyalcohol, the less viscous is the flexible glue mixture in which it is used as a softener.

Ethylene glycol actually imparts greater flexibility than glycerol, but the flexibilizing effect is not permanent because of the volatility of ethylene glycol. Sorbitol gives less flexibility than glycerol, as might be expected from the inherent differences in viscosity, but the nonvolatility of sorbitol makes its flexibilizing action a permanent effect.

In stabilizing water content, sorbitol is the most effective and glycol the least. Figure 2 shows the effect of atmospheric humidity on moisture content at room temperature of a mixture containing equal parts by weight of glue, softener, and water:

Similarly, other physical properties show progressive changes as we pass from glycol to glycerol to sorbitol as the softener in a given formulation. Thus sorbitol always gives greater tensile strength as well as higher viscosity than does glycerol or the glycols for all grades of glue, at equal concentration of glue and softener. At high temperature and high humidity sorbitol gives permanent protection, while at low humidity glycerol, imparting less viscosity and hence more flexibility, gives essentially permanent protection. Combinations of two softeners are sometimes used to blend desired flexibility characteristics.

All of the properties named vary markedly with water content. The instrument for determining the jelly strength of glue itself is the Bloom gelometer *(3)*. The method we use for determining water content of flexible glues is a modification of Carl Fisher's titrimetric procedure for water, as described in detail by Almy, Griffin, and Wilcox *(4)*. For viscosity measurement our laboratory has found the Hoeppler falling ball viscometer highly satisfactory. We have developed our own automatically controlled apparatus for determining the tensile strength of flexible glue compositions, dumb-bell shaped pieces of quarter-inch test section being loaded until rupture occurs; results are reproducible.

Unfortunately the literature on flexible glues is meager. Investigators such as R. H. Bogue *(5)* and Jerome Alexander *(2)* have published a great deal of information on the manufacture, testing, analysis, and general applications of glues and gelatin. Typical of published studies on adhesives is the paper presented by Campins *(6)* at the 1940 Annual Meeting of the Technical Association of the Pulp and Paper Industry and those of Langwill *(7)*. The U. S. Government Printing Office will shortly release a bulletin on "Bindery Adhesives" *(8)*. There is, however, almost no literature discussing softening agents in glue compositions.

In formulating a flexible glue composition for specialty coatings or sizes or for adhesive usage, a number of factors are involved. Types and grades of glue and softener, thickness of desired film, grade

of base paper, pore size of the paper, method of application, machine speeds, and similar considerations are part of the problem. Getting the right combination of properties and materials demands knowledge of all these facts.

The choice of glue and softener is fundamental. In choosing the grade of glue to be used its cost, availability, and water-holding power are primary values. Higher grade glues are more flexible and hold more water than low grade glues. The more water that can be tolerated, the thinner the film that can be laid. Hence higher grade glues give faster set, less penetration, with thinner films and correspondingly greater coverage capacity, the true measure of cost.

Present market conditions in the glue field offer an excellent reason for investigating glue-softener relationships. At the moment animal glues are high in price and, like so many other materials, are more and more difficult to obtain. It is timely, therefore, to compare sorbitol with glycerol in flexible glue formulations, with the idea that sorbitol may be substituted in a standard glue-glycerol formula with consequent saving in amount of glue or grade of glue used.

Table II, based in part on the data in Fig. 1, compares viscosity and tensile strength of flexible glues using glycerol and sorbitol. A typical flexible glue formula using one part of 400-gram glue and one and a half parts glycerol is taken as the standard. The original water content of the formula can be whatever is needed to obtain proper spreading and drying properties; for comparative purposes it is assumed that all films have reached an equilibrium moisture content of 20% water at room temperature and 55% relative humidity.

TABLE II

	400-gram glue		275-gram glue
Glue, parts	1.0	0.7	1.0
Glycerol, parts	1.5	..	..
Sorbitol, parts	..	1.8	1.5
Analyzed Water (4), %	20	20	20
Viscosity, cp. at 75 deg. C.	7500	8100	19000
Tensile strength, p.s.i. at 25 deg. C.	107	101	100

Measurements of other physical properties indicate that these formulas are quite similar in most respects. It is obvious that the substitution of sorbitol for glycerol in a flexible glue opens the way to use of less glue or sometimes even a lower grade of glue to accomplish like results. The exact formulations should be checked on the job, however, because practically all good flexible glue formulations are tailor-made.

Formulating an Oilproof Coating

An example of tailor-made formulations is that of an oil-proof coating for paper and for fiber containers. During the past twenty years there have been

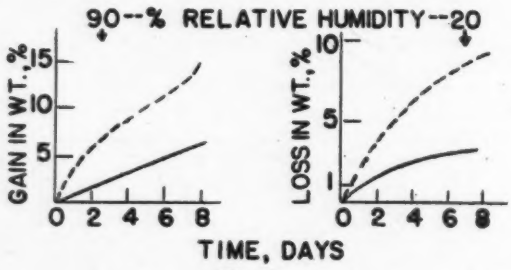

FIG. 2

Effect of Atmospheric Humidity. Legend: - - - - Glycerol-Glue, —— Sorbitol-Glue.

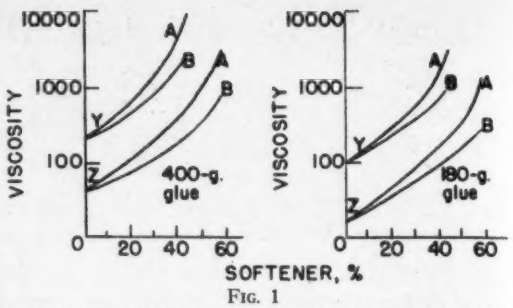

FIG. 1

Viscosity of Flexible Glues (Replacing Water with Softener). Legend: A—Sorbitol, B—Glycerol, Y—30% Glue, Z—20% Glue.

numerous references *(1, 2, 3)* to the suitability of glue for this purpose. Bitter experience, marked by too few successful applications, has proven that no blanket formula can be recommended. Yet, today's threatened shortage of tinplate and other metals has reopened the problem on a wider, more intriguing basis.

A thin, continuous, permanently flexible film, insoluble in oils or fats, is required. First of all, this necessitates the use of a high grade glue. To give permanent flexibility a polyalcohol must be added. Ethylene glycol can be eliminated because it is volatile, as well as soluble in a number of oils. Glycerol is not appreciably volatile and is insoluble in most oils and hydrocarbons. Sorbitol is nonvolatile and insoluble in all oils and hydrocarbons. Choosing between glycerol and sorbitol, the importance of the relationship of properties discussed above now becomes apparent.

Where maximum blocking resistance is important —as in coatings for doughnut boxes or for the "bag-in-box" type containers—a low softener content and a high melting point are required; coating is by doctor blade. With preformed convolute or spiral wound tubular paperboard containers, blocking is a less important factor, so a higher softener content can be used, with its resultant effect in improving shock resistance during handling; coating can be accomplished by spraying or flushing. The coatings can be left heat sealable or may be insolubilized to improve water resistance. In addition, other ingredients may be added to change minor properties and improve ease of application. Each application is a problem in itself.

Conclusion

Formulation problems are much easier when it is realized that there is a progression in these polyalcohols and in the properties conferred by them on flexible glues. Combining this principle with laboratory data and mill experience should help products and operation efficiency. New products, lower costs of old products, and even changes in basic raw materials are potential results.

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Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard; Bleached Sulphite More Acute—Some Grades of Old Waste Lower.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING OCTOBER 25, 1941

SUMMARY

Newsprint .....15,093 rolls

NEWSPRINT

H. G. Craig Co., Inc., ———, Donnacona, 303 rolls.
N. Y. Evening Journal, ———, Botwood, 1,299 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 395 rolls.
Perkins Goodwin & Co., ———, Botwood, 1,231 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 316 rolls.
Hearst Consolidated Publications, ———, Botwood, 4 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 306 rolls.
Street & Smith, ———, Botwood, 38 rolls.
Walker Goulard Plehn Co., ———, Botwood, 471 rolls.
Safran Printing Co., ———, Botwood, 2 rolls.
———, ———, Cornerbrook, 2,526 rolls.
Van Riekum Paper Co., ———, Botwood, 3,507 rolls.
———, ———, Canada, 4,101 rolls.
Sharp Paper & Specialty Co., ———, Botwood, 506 rolls.
Allied Metal Products & Supplies Corp., ———, Botwood, 88 rolls.

RAGS, BAGGINGS, ETC.

Ernst Cohn & Co., ———, Bombay, 200 bls. cotton waste.
———, ———, Buenos Aires, 233 bls. cotton linters.
S. Godfrey, ———, Buenos Aires, 28 bls. worsted rags.
Eisenberg, Rubin, Inc., ———, Santos, 2 bls. rags.
W. R. Grace & Co., ———, Paita, 44 bls. cotton linters.
———, ———, Santos, 194 bls. cotton linters.
A. W. Fenton, Co., ———, Buenos Aires, 20 bls. hemp waste.
New England Waste Co., ———, Pernambuco, 71 bls. cotton linters.
Riverside Mills, ———, Pernambuco, 91 bls. cotton waste.
W. Intner Co., Inc., ———, Pernambuco, 56 bls. cotton waste.
Atlas Waste Manfg Co., ———, Havana, 26 bls. cotton sweepings.
Philadelphia Natl. Bank, ———, Callao, 39 bls. cotton linters.
W. R. Grace & Co., ———, Callao, 56 bls. cotton linters.

GLUESTOCK, ETC.

Darmstadt Scott & Courtney, ———, Buenos Aires, 35 bls. dry gluestock.
Darmstadt Scott & Courtney, ———, Cancutta, 100 bags dry gluestock.
TransAtlantic Animal By Products Corp., ———, Montevideo, 284 bags glue.
Chase National Bank, ———, Santos, 400 bags bone glue.
Biological Raw Products, Inc., ———, Santos, 100 bags skin glue.

CASEIN

H. S. Cramer & Co., Inc., ———, Buenos Aires, 667 bags.
Biego Manfg. Co., ———, Buenos Aires, 167 bags.
C. W. Burckhalter, Inc., ———, Buenos Aires, 417 bags.
Manufacturers Trust Co., ———, Buenos Aires, 334 bags.

WOOD PULP

Cellulose Sales Co., ———, Botwood, 849 bls. dry ground wood pulp, 57 tons; 1,774 bls. dry unbleached sulphite pulp, 133 tons.
L. Hershman Co., ———, Botwood, 821 bls. ground wood laps, 144 tons.

Ameripol D. Synthetic Rubber

Featured by four tables, which contain data enough to answer almost any question on the subject, the B. F. Goodrich Company has just published an eight page catalog section on its Ameripol D synthetic rubber, used in making mechanical rubber products.

First of the tables compares the properties of Ameripol in 33 specific respects starting with "workability" and ending with "resistance to paint and ink driers" with natural rubber and two other types of synthetic rubber, giving the rating of each in the various categories.

The second table lists the properties of typical Ameripol D vulcanized compounds, including Shore durometer hardness, percentage of elongation at break, modulus at 300 per cent elongation, ultimate tensile strength, rebound elasticity, compression set and abrasion resistance index. It also lists the results on each type of compound of 48 hours immersion in fluids which have a solvenizing effect on natural rubber, ranging from hexane to light penetrating oil.

Table three gives the per cent volume increase after 48 hours immersion of natural rubber and two other types of synthetic rubber, as compared to Ameripol D, while the fourth table is a rough guide to determine the service where the use of Ameripol D is practical.

Plentifully illustrated with pictures showing mechanical rubber products made with Ameripol D, the folder discusses in detail its properties, hardness, tensile strength, elongation, weight, color, odor and taste, elasticity and permanent set, tear and abrasion resistance, and resistance to flexing, oils and solvents and heat.

Ameripol D was developed in the B. F. Goodrich laboratories by Dr. Waldo L. Semon, by an exclusive polymerization process from butadiene. Its basic material is petroleum.

Coating Plant Moved to Plainwell

KALAMAZOO, Mich., October 27, 1941—The coating plant of the Michigan Paper Company Plainwell, which has been operated as a separate unit in Kalamazoo since 1927 has been moved to the main plant at Plainwell and henceforth will function there.

The Plainwell mill has been enlarged to take care of the coating equipment. The local plant had one hundred employes and as far as possible, the personnel will be transferred to Plainwell. Everett Hayes is superintendent, Chauncey Davis, chief engineer and Paul de Guehery chemist, of the division.

New York Paper and Pulp Market Review

OPA Orders Eastern Paper Board and Roofing Mills To Reduce Consumption of Waste Paper 10 Per Cent Next Month — Pulp Market Strong—Rag Market Expects Ceiling Prices Before Long.

Office of the PAPER TRADE JOURNAL,
Wednesday, October 29, 1941.

Some improvement in stability in buying and signs of less uncertainty for the future course of industry and trade, is reflected in reports received from many manufacturers' representatives, jobbers, and general paper merchants during the current week.

As defense work steadily increases on a large scale, it reveals that the productive facilities of this country are likely to expand substantially in excess of the highest estimates. Industry as a whole, has never had so great an opportunity to speed up production and this may be observed in the more essential lines of non-durable goods, although all products vital to defense must be given preference.

This notable ability of American industry to rapidly expand is also present in the paper industry. While more paper was manufactured last year than in any previous year on record, current production is estimated to be running some 2,800,000 tons higher than at this date last year.

The index of general business activity for the week ended October 18, declined to 126.2%, from 126.5% for the preceding week, compared with 121.1% for the corresponding period last year.

Paper production for the week ended October 18 was 104.9%, compared with 84.5% for 1940, with 98.0% for 1939, with 83.8% for 1938, and with 73.6% for the corresponding week for 1937.

Paper board production for the week ended October 18 was 98.0%, compared with 80.0% for 1940, with 84.0% for 1939, with 70.0% for 1938, and with 64.0% for the corresponding week for 1937.

Demand for all leading lines of paper and paper board is very heavy, with estimates of Government requirements rising, particularly in sulphite bond and the lower rag-content grades.

A new limitation order issued by OPA last week and effective next month, directs that mills reduce their consumption of waste paper by 10%.

Prices are firmly maintained on all grades of paper and paper products, with stable market generally expected to prevail in the trade for the remainder of this year.

Chemical Pulp

Demand for chemical pulp continues heavy. Production of both domestic and Canadian manufacturers is reported to have turned more sharply upward in recent weeks. Imports of all grades of woodpulp for the first seven months of 1941 were 137,916 tons under the like period in 1940. Exports were also lower by some 3,000 tons in that period. Prices are maintained firmly at a stabilized level as directed by the Office of Production Management and Civilian Supply.

Rags

Demand continues active for white shirt cuttings. Prices are strongly maintained. The proposed OPA ceiling prices has exerted a stabilizing influence on this market and no important change from prevailing prices has been reported at this date.

The roofing grades are active and mills are reported buying according to the price schedule suggested by the OPA, and not bid up prices.

Old Rope and Bagging

Demand continues active for old Manila rope and mill buying steadily absorbs about all the limited available supply. Prices are maintained unchanged at this date.

Scrap bagging continues in active demand. Prices are firm and continue unchanged.

Old Waste Paper

Demand continues active for many grades of old waste paper, with prices maintained at the level of the schedule directed by OPA.

A concession of $1 per ton price differential has been allowed by the OPA. This permits dealers to charge $1 more per ton to cover the higher cost of f.o.b. shipments by railroad.

Twine

No important change in prices or demand has been reported this week on any grade of soft or hard fiber twine. Prices are firmly maintained under an active demand.

Buying More Stabilized

PHILADELPHIA, Pa., October 27, 1941—With a more or less uneventful week in the paper trade, which can be characterized as marking time rather than by any other designation, merchants are highly enthusiastic over the stabilized buying which is prevailing. Opinion generally seems to center on the ceilings as the key to the present situation. While the distributors realize that national defense requirements transcends all else, they still contend that they should have been given more advance notice. And while every one, to a man, is adhering to the regulations as prescribed by the Office of Price Administration and Civilian Supply, they are contributory factors that have been more or less disturbing and are reflected in the paper industry as a whole. One very disappointing factor in the situation is the withholding of what had been expected to be very aggressive direct sales campaigns by various industries and particularly the advertising agencies involving, of course, active paper sales. These campaigns, save in isolated instances, have not been launched, although there is no evidence of any abandonment of purpose to inaugurate them just as soon as industrial relationships and economic conditions make such a procedure advisable.

Albert Hicks Recovers

The many friends of Albert Hicks will be glad to learn that he has recovered his health and returned on Monday to his desk in the office of Daniel M. Hicks, Inc., 565 Fifth avenue, New York.

West Virginia Pulp and Paper Company

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New York

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Chicago

Public Ledger Building
Philadelphia, Pa.

503 Market St.
San Francisco, Cal

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Offset, Envelope, Bond, Writing, Mimeograph, Ledger, Eggshell, Cover and Music Papers, Index Bristol, Post Card and Label Papers

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KRAFT WRAPPING AND KRAFT ENVELOPE
KRAFT LINER BOARD
BLEACHED SULPHITE AND SODA PULP
BLEACHED AND UNBLEACHED KRAFT PULP

MILLS:

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Luke, Maryland
Covington, Virginia
Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Cass, West Virginia
Charleston, South Carolina

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● SWW beater bars stand up. The record shows that. And one of the reasons is double-tempering. Specify the standard or special type you need—watch how SWW's help to keep conversion costs in line.
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S.W.W.
BEATER BARS

It's your turn

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Have you heard about our standing offer to plant engineers? It is this . . . just send us your name and address on a postal card, and we will send you FREE a working sample of CUTNO for any stuffing box which handles alkalis.

Other engineers, who have wanted to reduce their packing costs and eliminate packing troubles, have made this test, with the result that more than 90% have become permanent users of CUTNO. This close-to-unanimous judgment can mean only one thing . . . that CUTNO is superior for all alkalis.

Now it's your turn to make the test. Your free working sample is awaiting your request and will be sent to you by return mail. Be sure to mention the size and the service.

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Send free working sample of packing ..... size, for ..... service.

Name .....

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MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, October 29, 1941.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b., works. Demand reported good for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported good for the week. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are firm, under a good demand for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 28 cents per pound; 80-100 mesh, at 28½ cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 21 cents per pound. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand reported active. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, car lots, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported moderate at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Government demand heavy. Market under mandatory priority ruling. Chlorine is currently quoted at $2 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with prices lower on some grades. "G" gum rosin is currently quoted at $2.46 per 100 pounds, in barrels. Savannah "FF" wood rosin is currently quoted at $2.46 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.97 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm and nominal. Demand active. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16 per ton imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported active for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and are reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported active for the current week. The commercial grades are currently quoted at $1.15; iron free at $1.85 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.25	@	$6.00
Superstandard	4.87½	"	5.38
Northern Standard Wrapping	4.50	"	5.00
Standard Wrapping	4.50	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.07½	"	—
White No. 1 M. G.	.97½	"	—
White No. 1½	.85	"	—
White No. 2	.85	"	—
Anti-Tarnish M. G.	.90	"	—
Colored	1.00	"	—
Kraft	.90	"	—
Manila	.80	"	—
Unbl. Toilet, 1 M.	4.14	"	—
Bleached Toilet	5.60	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	3.80	"	—
Bleached, Jr.	2.30	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.75	@	10.75
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	48.00	@	—
Chip	48.00	"	—
Sgl. Mla. Lt. Chip	60.00	"	—
White Pat. Coated	75.00	"	—
Kraft Liners	60.00	"	—
Binders Boards	80.00	"	—

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$40.25@$47.25	$41.40@$48.50
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	32.20 " 37.75
75% Rag	24.75 " 29.00	25.90 " 30.50
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—
White, Assorted Items.
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$13.05	@	$14.75
No. 2 Glossy Coated	11.80	"	13.50
No. 3 Glossy Coated	11.00	"	12.50
No. 4 Glossy Coated	10.60	"	12.00
No. 1 Antique (water-marked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. & S. C.	9.10	"	10.50
C Grade E. F.	8.50	"	9.75
C Grade S. & S. C.	8.75	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	No prices		
Dry	No prices		

(Delivered)

No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.62½	@	4.75
Prime Qualities—			
Easy-Bleaching Sulphite	3.17½	"	4.25
Strong Unbleached Sulphite	3.17½	"	4.25
News Grade, delivered			
Unbleached Sulphite	63.75	"	67.75

(On Dock, Atlantic Ports)

Kraft Bleached	4.12½	"	—
Kraft Light & Strong	No price		
Kraft No. 1	3.60	"	4.75

(F. o. b. Pulp Mill)

Kraft Domestic and Canadian	3.00	"	3.50

(Delivered)

Soda Bleached	3.30	"	—

Add 60 cents per short ton, dock charges for Albany; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	8.00	@	8.25
Silesias No. 1	4.50	"	4.75
New Unbleached	8.00	"	8.25
Blue Overall	5.75	"	6.00
Fancy	3.00	"	3.25
Washables	2.50	"	2.75
Mixed Khaki Cuttings	2.50	"	2.75
O. D. Khaki Cutings	3.00	"	3.15

Old Rags

White, No. 1—			
Repacked	3.75	"	4.00
Miscellaneous	3.25	"	3.50
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Third and Blues—			
Repacked	1.25	"	1.35
Miscellaneous	1.10	"	1.25
Roofing Rags—			
No. 1	1.50	"	1.60
No. 2	1.35	"	1.50
No. 3 (bagging)	.95	"	1.00
No. 4	.90	"	.95
No. 5A	.90	"	.95

Foreign Rags

All prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxfords	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

When

APPLETON FELTS FIRST WERE MADE

THIS WAS A MODERN PAPER MILL

As inventive genius was applied to the making of paper, hand methods gave way to machines designed for production. Year after year as progress was made, Appleton Felts have kept pace with this progress in paper making. Today Appleton Felts are standard for all those characteristics paper mills require in felts to make good paper.

APPLETON WOOLEN MILLS, APPLETON, WIS.

PRICE & PIERCE ltd

Wood Pulp & Paper Agents

60 EAST 42 ST NEW YORK CITY

ZOPAQUE RG

Pure TiO_2

This grade of TiO_2 shows highest developments of aqueous dispersion and suspension yet attained.

"We appreciate the patience and cooperation of our customers during this period when our production is being pushed to capacity."

Sole Selling Agents:
The Chemical & Pigment Company
Baltimore, Md. · Collinsville, Ill. · Oakland, Calif.
Manufactured by
American Zirconium Corporation
Baltimore, Maryland

No. 4 White Linens.	2.25	@	3.25
No. 1 White Cotton.	4.25	"	4.75
No. 2 White Cotton.	3.25	"	3.75
No. 3 White Cotton.	2.50	"	3.00
No. 4 White Cotton.	1.90	"	2.20
Extra Light Prints..	2.00	"	2.40
Ord. Light Prints...	1.75	"	2.15
Med. Light Prints...	1.55	"	1.95
Dutch Blue Cottons.	2.25	"	2.50
French Blue Linens.	3.00	"	—
Checks and Blues...	2.00	"	—
Linsey Garments....	1.90	"	2.00
Dark Cottons.....	1.50	"	1.60
Old Shopperies.....	1.30	"	1.45
New Shopperies.....	1.45	"	1.50
French Blues.....	2.25	"	2.50

Old Rope and Bagging
(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	4.50	@	4.75
Wool Tares, light....	4.25	"	4.50
Wool Tares heavy..	4.50	"	4.75
Bright Bagging.....	4.25	"	4.50
Manila Rope			
Foreign	6.00	"	6.25
Domestic	6.00	"	6.25
Jute Threads.....	4.00	"	4.25
Sisal Strings.....	2.75	"	3.00
Mixed Strings.....	1.10	"	1.20

Old Waste Papers
(F. o. b. New York)

Shavings—			
White Envelope Cuttings	—	@	—
Ordinary Hard White No. 1....*3.00		"	—
Soft White No. 1..*2.15		"	—
Soft White Extra..	—	"	—
Flat Stock—			
Stitchless	—	"	—
Overissue Mag....*1.67½		"	—
Solid Flat Book...*1.57½		"	—
Crumbled No. 1....	—	"	—
Ledger White Stock.*2.12½		"	—
Ledger Stock Colored*1.92½		"	—
Manila—			
New Env. Cut....*2.70		"	—
New Cuttings.....	—	"	—
Old Kraft Machine Compressed bales..*1.35		"	—
News—			
No. 1 White News *1.65		"	—
Strictly Overissue. *.85		"	—
Strictly Folded.... *.75		"	—
Corrugated ..... *.72½		"	—
No. 1 Mixed Paper.. *.65		"	—

* OPA Maximum Prices in Effect October 1.

Twines
(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp.....	.21	"	—
Fine Polished—			
Fine India.....	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers.....	.17	"	—
Tube Rope.....	.19	"	—
Wall Paper.....	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope...	.19	"	—
Cotton	.25	"	—
(Hard Fiber)			
Medium Java.....	.18	"	—
Mex. Sisal.....	.16	"	—
Manila	.26	"	—

PHILADELPHIA

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White No. 1.	.07¼ @		.07½
New White No. 2.	.04½ "		.05
Light Silesias.....	.04½ "		.04¾
Silesias, No. 1....	.04 "		.04¼
Black Silesias, soft	.03¼ "		.04
New Unbleached..	.07¼ "		.07½
Washable Prints..	.03¾ "		.03½
Washable No. 1..	.02 "		.02¼
Blue Overall.....	.04½ "		.05½
Cottons—According to grades—			
Washable shredding	— "		.01¾
Fancy Percales....	.03¼ "		.03½
New Black Soft...	.02¾ "		.03
New Dark Seconds	1.75 "		2.00
Khaki Cuttings—			
No. 1 O. D.....	.03 "		.03¼
No. 2 Mixed.....	.02¼ "		.02½
Corduroy	.01¾ "		.02¼
New Canvas.....	.04¾ "		.05¼
New Black Mixed.	— "		.02½

Domestic Rags (Old)

White No. 1—			
Repacked	3.25	@	3.75
Miscellaneous	3.00	"	3.25
Thirds and Blues—			
Miscellaneous	2.00	"	2.25
Repacked	2.25	"	2.50
Black Stockings (Export)	Nominal		
Roofing Stock—			
Foreign No. 1....	Nominal		
Domestic No. 1...	1.95	"	2.00
Domestic No. 2...	1.80	"	1.85
Roofing Bagging..	1.70	"	1.75

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	3.50	@	4.25
Domestic	3.75	"	4.25
Manila Rope.....	5.00	"	5.50
Sisal Rope.....	3.75	"	—
Mixed Rope.....	.75	"	1.00
Scrap—			
No. 1.....	3.75	"	4.00
No. 2.....	1.75	"	1.80
Wool Tares, heavy...	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers
(F. o. b. Phila.)

Shavings—			
Hard White Envelope Cuttings....*3.00		@	—
No. 1 Hard White Shavings	2.50	"	—
No. 1 Soft White. *2.15		"	—
White Blank News*1.65		"	—
No. 1 Mixed Shavings	—	"	—
Solid Ledger Stock..	—	"	—
No. 1 White Ledger. *2.12½		"	—
No. 1 Mixed or Colored Ledger.....*1.92½		"	—
No. 1 Books, heavy. *1.57½		"	—
Overissue Magazine. *1.67½		"	—
New Manila Envelope Cuttings *2.70		"	—
Container Manila....	—	"	—
New Kraft Cuttings. *2.60		"	—
Kraft Paper (Old)...*1.50		"	—
No. 1 Mixed Paper..	*.65	"	—
Super-mixed Paper..	*.70	"	—
Box Board Cuttings.	*.72½	"	—
Corrugated Containers (old).....	*.82½	"	—
New Corrugated Cuttings	*.90	"	—
Overissue News....	*.85	"	—
No. 1 Baled News..	*.75	"	—

* OPA Maximum Prices in effect October 1.

BOSTON

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White. *3.00		@	—
No. 1 Soft White. *2.15		"	—
No. 2 Mixed.....	.90	"	1.00
Solid Ledger Books.	2.25	"	2.50
Overissue Ledger Stock	2.10	"	2.25
White Ledger Stocks*2.12½		"	—
Mixed Ledgers *1.92½		"	—
No. 1 Heavy Books..*1.57½		"	—
No. 1 Books, Light..	.75	"	.85
Crumpled Stitchless Book Stock.....	1.25	"	1.35
Manila Env. Cuttings	3.00	"	3.25
Manila Envelope Cuttings, extra quality*2.70		"	—
White Blank News..*1.65		"	—
No. 1 Kraft.....	2.25	"	2.40
Extra No. 1 Kraft...	2.65	"	3.00
Mixed Papers.....	*.65	"	—
Super Mixed Papers.	.70	"	—
Print Manila	—	"	—
Container Manila....	.65	"	.75
Old Newspapers.....	—	"	—
Paper Wool Strings.	1.30	"	1.35
Overissue News.....	*.85	"	—
Box Board Chips....	.35	"	—
Corrugated boxes....	*.72½	"	—
Kraft corrugated boxes	*.90	"	—
New Kraft Corrugated Cuttings....*2.45		"	—
Screening Wrappers.	.90	"	1.00

* OPA Maximum Prices in Effect October 1.

Bagging
(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	5.00	@	—
Sisal Rope.....	3.50	"	4.00
Mixed Rope.....	1.00	"	1.25
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Soft Jute Rope.....	5.00	"	5.50
Manila Rope—			
Foreign .....(nominal)			
Domestic	6.00	"	6.25
Jute Carpet Threads.	3.00	"	3.25
Bleachery Burlap....	7.50	"	8.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	4.50	"	4.75
Scrap Sisal.....	3.25	"	3.50
Scrap Sisal for Shredding	3.75	"	4.00
Wool Tares—			
Foreign	(nominal)		
Domestic	5.00	"	5.50
Aust. Wool Pouches.	5.00	"	5.25
New Burlap Cuttings	5.50	"	5.75
Heavy baling bagging	5.00	"	5.25
Paper Mill Bagging..	4.00	"	4.25
No. 2 Bagging.....	.50	"	.60

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints.	.04½ @		.04¾
Fancy Percales....	.04¼ "		.05
New White No. 1.	.07¾ "		.08
New Light Flannelettes	.06 "		.06¼
Canton Flannel, Bleached	.08¼ "		.08½
Underwear Cutters, Bleached	.08¼ "		.08½
Silesias No. 1.....	.04½ "		.05
New Black Silesias..	.04½ "		.04½
Red Cotton Cuttings	.03½ "		.04
Soft Unbleached....	.08½ "		.08¾
Blue Cheviots....	.04¾ "		.05
Fancy	.01¾ "		.02
Washable	.01¾ "		—
Cottons—According to Grades—			
Blue Overalls.....	.06 "		.06¼
New Black, Soft..	.03¾ "		.04
Khaki Cuttings.....	.02¾ "		.02¾
O. D. Khaki.....	.02½ "		.03¼
Corduroy	.02 "		.02¾
New Canvas.....	.05½ "		—
B. V. D. Cuttings...	.07¾ "		.08

Domestic Rags (Old)
(F. o. b. Boston)

White No. 1—			
Repacked	4.00	@	—
Miscellaneous	3.00	"	—
White No. 2—			
Miscellaneous	2.50	"	3.00
Twos and Blues.....	1.75	"	2.00
Old Blue Overalls...	2.25	"	2.50
Thirds and Blues....	1.75	"	—
Miscellaneous	1.25	"	1.33
Black Stockings.....	3.50	"	4.00
Roofing Stock—			
No. 1.....	1.80	"	—
No. 2.....	1.60	"	—
No. 3.....	1.50	"	—

Foreign Rags
(F. o. b. Boston)

Canvas .....(nominal)	
Dark Cottons.....(nominal)	
Dutch Blues.....(nominal)	
New Checks and Blues(nominal)	
Old Fustians.....(nominal)	
Old Linsey Garments.(nominal)	
New Silesias.....(nominal)	

CHICAGO

Waste Paper
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings...	—	@	—
No. 1 Hard White*3.00		"	—
No. 1 Soft White. *2.15		"	—
No. 1 White Ledger*2.12½		"	—
Solid Books *1.57½		"	—
White Blank News. *1.65		"	—
Krafts *1.50		@	—
New Kraft Cuts....*2.60		"	—
..... *.85		"	—
Old Newspapers—			
No. 1 Folded News *.70		"	—
No. 1 Mixed Paper *.65		"	—

* OPA Maximum Prices in Effect October 1.

Roofing Stocks—			
No. 1.....	1.85	@	—
No. 2.....	1.75	"	—

Liquid Chlorine

A revised edition of an informative booklet on chlorine has recently been issued by the Pennsylvania Salt Manufacturing Company, 1000 Widener Building, Philadelphia, Pa.

The front cover of this publication is of unusual interest. It presents in luminous coloring the current conceptions of the structure of the chlorine atom. This drawing is based on a three dimensional model which has been placed in the exhibit of the Pennsylvania Salt Manufacturing Company in the Chemistry Section of the Franklin Institute in Philadelphia.

On the reverse side of the drawing is an explanation of the accepted theories of atomic structure, and the endeavor of the company to show the distinction between the electrons and the nucleus, the total number and grouping of electrons, and the total energy and angular momentum of each, by representing them in assumed and phantom orbits.

The text of the booklet contains much useful information on the properties and proper handling of chlorine, uses of the product, the preparation of chlorine compounds, analytical methods and handling chlorine leaks. The appendix gives a critical review of chlorine and the booklet concludes with a list of products.

Badger Mills Drill Deep Well

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 27, 1941—Drilling of a large well has been completed by the Badger Paper Mills, Inc., Peshtigo, Wis. It is 708 feet deep and will produce 1,000 gallons of water per minute. The drilling was done by the Layne Northwest Company, Milwaukee, Wis.